DOCUMENT RESUME

ED 312 261 SP 031 680

AUTHOR Feiman-Nemser, Sharon
TITLE Teacher Preparation: Structural and Conceptual Alternatives. Issue Paper 89-5.
INSTITUTION National Center for Research on Teacher Education, East Lansing, MI.
SPONS AGENCY Office of Educational Research and Improvement (ED), Washington, DC.
PUB DATE Aug 89
NOTE 51p.
AVAILABLE FROM National Center for Research on Teacher Education, 116 Erickson Hall, College of Education, Michigan State University, East Lansing, MI 48824-1034 ($5.50).
PUB TYPE Reports - Descriptive (141)

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS *Concept Teaching; Elementary Secondary Education; Excellence in Education; Fundamental Concepts; Higher Education; Preservice Teacher Education; *Program Content; *Program Design; Program Length; *Research Reports; *Teacher Education Programs

ABSTRACT

This paper focuses on different ways of conceiving and carrying out teacher preparation. It examines some ideas about how teachers should be prepared and offers some frameworks for looking at distinctive approaches and alternatives. It also discusses the state of the art concerning programs of initial teacher preparation and indicates where conceptual, empirical, and practical work is needed. In discussing needed changes in teacher preparation, people tend to emphasize either structural or conceptual issues. Tied to policy mandates and questions of supply and demand, structural alternatives reflect political and economic considerations more than what teachers need to know. On the other hand, conceptual alternatives reflect different views of teaching and learning to teach and suggest different orientations to the preparation of teachers. A review of research-in-progress is presented, designed to generate information about different approaches and alternatives. (JD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED312261

Issue Paper 89-5

Teacher Preparation: Structural and Conceptual Alternatives

Sharon Feiman-Nemser

National
Center for Research
on Teacher Education

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
S. Feiman-Nemser
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Sponsored by the United States Department of Education
Office of Educational Research and Improvement

BEST COPY AVAILABLE

SP031 680

Issue Paper 89-5

TEACHER PREPARATION: STRUCTURAL AND CONCEPTUAL ALTERNATIVES

Sharon Feiman-Nemser

Published by

The National Center for Research on Teacher Education
116 Erickson Hall
Michigan State University
East Lansing, Michigan 48824-1034

August 1989

This work is sponsored in part by the National Center for Research on Teacher Education, College of Education, Michigan State University. The National Center for Research on Teacher Education is funded primarily by the Office of Educational Research and Improvement, United States Department of Education. The opinions expressed in this paper do not necessarily represent the position, policy, or endorsement of the Office or the Department.

National Center for Research on Teacher Education

The National Center for Research on Teacher Education (NCRTE) was founded at Michigan State University in 1985 by the Office of Educational Research and Improvement, U.S. Department of Education.

The NCRTE is committed to improving teacher education through research on its purposes, its character and quality, and its role in teacher learning. NCRTE defines teacher education broadly and includes in its portfolio such diverse approaches as preservice, inservice, and induction programs and alternate routes to teaching.

To further its mission, the NCRTE publishes research reports, issue papers, technical series, conference proceedings, and a newsletter on contemporary issues in teacher education. For more information about the NCRTE or to be placed on its mailing list, please write to the Editor, National Center for Research on Teacher Education, 116 Erickson Hall, Michigan State University, East Lansing, Michigan 48824-1034.

Director:	Mary M. Kennedy
Associate Directors:	Robert E. Floden G. Williamson McDiarmid
Editor:	Sandra Gross

Many papers published by the NCRTE are based on the Teacher Education and Learning to Teach Study, a single multisite longitudinal study. The researchers who have contributed to this study are listed below:

Marianne Amarel
Deborah Loewenberg Ball
Joyce Cain
Sandra Callis
Barbara Camilleri
Anne Chang
David K. Cohen
Ada Beth Cutler
Sharon Feiman-Nemser
Mary L. Gomez
Samgeun K. Kwon
Magdalene Lampert
Perry Lanier
Glenda Lappan
Sarah McCarthey
James Mead
Susan L. Melnick
Monica Mitchell
Harold Morgan
James Mosenthal
Gary Natriello
Barbara Neufeld
Lynn Paine
Michelle Parker
Richard Prawat
Pamela Schram
Trish Stoddart
M. Teresa Tatto
Sandra Wilcox
Suzanne Wilson
Lauren Young
Kenneth M. Zeichner
Karen K. Zumwalt

Abstract

This paper focuses on different ways of conceiving and carrying out teacher preparation. The distinction between structural and conceptual alternatives provides a way to highlight some of the "big ideas" that Americans have had about how teachers should be prepared for their work. At the same time, it reflects the immature state of the field in which different forms of teacher preparation are only loosely tied to explicit traditions of thought and conceptual orientations lack well developed traditions of practice. The paper begins with a brief discussion of historic traditions that have shaped ideas about teacher preparation and concludes with a review of research-in-progress designed to generate information about different approaches and alternatives.

TEACHER PREPARATION: STRUCTURAL AND CONCEPTUAL ALTERNATIVES[1]

Sharon Feiman-Nemser[2]

This paper focuses on different ways of conceiving and carrying out teacher preparation. It examines some of the ideas that Americans have had about how teachers should be prepared and offers some frameworks for looking at distinctive approaches and alternatives. The paper also discusses the state of the art concerning programs of initial teacher preparation and indicates where conceptual, empirical and practical work is needed.

The organization of this paper reflects a basic distinction in the professional literature and public debate. In discussing needed changes in teacher preparation, people tend to emphasize either structural or conceptual issues. Many of the current reforms, for example, call for adding a fifth year, increasing the amount of field experiences, limiting the number of credit hours in education, creating alternative routes to teaching by providing on-the-job training for liberal arts graduates. Tied to policy mandates and questions of supply and demand, these structural alternatives reflect political and economic considerations more than clear thinking about what teachers need to know or how they can be helped to learn that.

At the same time, one can hardly pick up a professional journal or attend a professional meeting these days without encountering the terms "reflective teaching and teacher education." Fifteen years ago, the same would have been true of the terms "competency-based" or "performance-based" teacher education. These conceptual alternatives reflect different views of teaching and learning to teach and suggest different orientations to the preparation of teachers.

Distinguishing between structural alternatives and conceptual orientations provides a way to highlight some of the major efforts that have dotted the teacher education landscape. At the same time, the need for such a strategy underscores the immature state of a field in which different forms of teacher preparation are only loosely tied to explicit traditions of thought, and conceptual orientations lack well developed traditions of practice. Instead of mandates and models, we need to learn from the past, experiment with alternatives and clarify what is entailed in helping people in different settings learn to teach.

Historic Traditions in Preparing Teachers

Today most teachers enter teaching by means of a four-year, undergraduate program. There was a time, however, when few believed that elementary teachers needed a college

---

[1]This will appear as a chapter in W. R. Houston (Ed.), *Handbook for Research on Teacher Education* (New York: Macmillan).

[2]Sharon Feiman-Nemser, a professor of teacher education at Michigan State University, is a senior researcher with the National Center for Research on Teacher Education. The author expresses appreciation to the following people for their helpful comments on an earlier draft of this paper: Margaret Buchmann, Robert Houston, Susan Melnick, Michelle B. Parker, Michael Sedlak, Alan Tom, Ken Zeichner, and Karen Zumwalt.

education, that high school teaching required professional preparation, or that teacher education was a fit undertaking for a major, research university. To appreciate how teacher preparation acquired its characteristic shape and where some of the major ideas about learning to teach have come from, we need to know something about the history of teacher education.

Three historic traditions have influenced ideas about and approaches to teacher preparation. Each tradition can be linked to a different institution offering a different kind of preparation to a different group of clients (see Table 1). The normal school tradition was intimately connected with the preparation of elementary teachers. The liberal arts tradition had early ties to the preparation of secondary teachers in liberal arts colleges. The tradition of professionalization through graduate preparation and research were promoted by the modern university which sought to prepare educational leaders.

The Normal School Tradition

The idea of teacher education as a special kind of academic training did not exist before there were normal schools. Prior to their appearance in the second quarter of the nineteenth century, few elementary teachers had any specific instruction for their work. Figuring out what kind of training to offer was the central challenge.

The early normal schools provided a brief course of study to help students master the subjects they would teach and acquire some techniques for managing instruction. With the spread of secondary education, normal schools began to require a high school diploma for admission and to offer a two-year course of study. The typical curriculum consisted of reviews of elementary subjects (e.g., reading, spelling, arithmetic), some secondary academic subjects (e.g., geometry, philosophy) and pedagogical subjects (e.g., history of education, psychology, teaching methods, observation and practice [Monroe, 1952]).

When students had barely completed elementary school, it made sense to review the "common branches." Once normal schools required a high school diploma, some leaders felt that these schools should not duplicate academic instruction available in secondary schools and colleges. Rather they should offer a "strictly professional" curriculum. There were two approaches to this goal. One school of thought emphasized the "professional treatment of subject matter"; a second, emphasized training in special methods (Cremin, 1953).

Professional treatment of subject matter. Proponents of the professional treatment position believed that a teacher's knowledge of subjects differed from "academic" knowledge. This idea was promoted at Indiana State Normal School where faculty developed a distinctive kind of instruction in which "the method of the subject" became the main object of attention. Subject matter courses modeled principles taught in professional courses on the psychology of learning. Methods courses engaged students in reflection on their own experience as learners of school subjects as a way of sensitizing them to problems their

Table 1

Historical Traditions in Teacher Preparation

INSTITUTION	ELEMENTS/THEMES	CLIENTELE
Normal Schools and Teachers Colleges	> institutional autonomy > professional esprit de corps > professional treatment of subject matter > art and science of teaching	Elementary Teachers
Liberal Arts Colleges	> liberal arts as preparation for teaching > education as liberal art > intellectual values, knowledge and skills > common learnings	Secondary Teachers
University Schools of Education	> research ideal > education as applied social science > professionalization through graduate study > devaluing of experience	Educational Leaders

pupils might encounter (Borrowman, 1956; Randolph, 1924). In this way, the entire program was organized around the professional goal.

Technical theory and methods. The second approach to creating a "strictly professional" curriculum emphasized technical theory and training in method. Edward Sheldon, president of Oswego Normal and Training School, developed a philosophy and methodology called "object teaching" based on ideas about the dignity and worth of children and the role of the senses in learning. Under this system, students learned special rules for teaching various subjects and practiced them in the training school. Sheldon considered the training school the heart of the professional program. Here students could observe model lessons and practice approved methods under close supervision. Recognized as part of the necessary equipment for training teachers, the practice school fostered close ties between pedagogical theory and practice.

"Object teaching" was replaced by a second general method developed by the Herbartians. Also influenced by European pedagogical theory, the Herbartians emphasized technical competence. They believed that sound teaching consisted of five formal steps: preparation, presentation, association, generalization, and application. These ideas, which sound like contemporary models of direct instruction, were popular during the last quarter of the nineteenth century (Woodring, 1975).

While we tend to associate normal schools with narrow training, this judgment ignores the historic context in which they evolved and their hard-won gains in differentiating professional from liberal arts education. Commenting on their contribution, Clifford and Guthrie (1988) write:

> Although, in fact, the nineteenth century normal schools were never the single-minded and essential teacher education centers that their supporters had wished, their disappearance took with it two professional assets: First, the ideal of the autonomous professional school devoted solely to the exalted preparation of teachers and second, a dominating concern with "practical pedagogy." (p. 61)

Normal schools had a clear sense of their mission. They championed the idea of teaching as a noble calling or vocation and fostered a professional esprit de corps. Unlike modern-day schools of education with their fragmented mission and defensive posture, normal schools knew that their major purpose was to serve the profession by educating practitioners. They "formed" their students more effectively than the large university schools and departments of education that replaced them (Powell, 1980, p. 59). They also "glorified and supported the ideal of superb craftsmanship" (Borrowman, 1956, p. 19). The normal school curriculum gave explicit attention to pedagogical training and supervised practice and the practice school, at least in the stronger normal schools, fostered close ties between theory and practice (Clifford and Guthrie, 1988).

The Liberal Arts Tradition

The older, liberal arts tradition predates any thought of teacher preparation as a special kind of schooling. Linked in the nineteenth century with the preparation of secondary teachers, the liberal arts tradition highlights the unique relationship between liberal education and teaching. According to this tradition, "to be liberally educated and to be prepared to teach are equivalent" (Borrowman, 1965, p. 1).

In the nineteenth century, liberal arts colleges and secondary schools formed a "closed circle." The colleges offered a classical education to a select group of students who mostly entered the higher professions and became leaders in the community. A few taught in secondary schools which were elite, college preparatory institutions (Borrowman, 1956; Church and Sedlak, 1976). The expansion of secondary education brought a more diverse student population and the need to adapt the high school curriculum to a broader set of purposes. Still, liberal arts colleges kept their distance from school reform and persisted in the view that a liberal arts program was the best preparation for teaching, especially at the secondary level (Borrowman, 1956; Church and Sedlak, 1976; Cremin, 1953).

The idea that "liberal" and "useful" knowledge were incompatible dominated collegiate education for a long time. Harking back to the Greeks who reserved the liberal arts for free citizens, supporters of the classical curriculum believed that liberal study was only possible when students were not preoccupied with the immediate demands of vocational preparation (Borrowman, 1956). Although not designed with vocational goals in mind, the traditional college program served both liberal and professional aims. It inducted students into a common body of cultural knowledge. It fostered intellectual habits and skills deemed necessary for continued learning. It sought to develop humane values and a sense of social responsibility. At the same time, the classical curriculum exposed students to the best available thinking about education. Texts encountered in courses on mental and moral philosophy such as Aristotle's *Ethics* and Cicero's *Orations* discussed the meaning of a good life, the role of education in society, the nature of learning and human development, even methods of teaching.

The "modern" research university that emerged at the end of the 19th century altered the traditional definition of liberal arts education by attacking the notion that only certain subjects were inherently "liberal." New disciplines like the natural sciences were developing and some university leaders thought they should be taught. The rejection of the classical curriculum inspired various experiments in general education during the early decades of the twentieth century. Designed to balance the traditional liberal arts ideal of a common course of study with growing specialization, these experiments typically involved a prescribed curriculum in the first two years to ensure breadth of exposure and understanding with opportunities for electives in the last two years to respond to students' specialized interests. While the liberal arts tradition represented a defense against early specialization, both academic and professional, it became

increasingly difficult in the 20th century to preserve those values in the university and even in the liberal arts college.

While the liberal arts tradition concerns the education of teachers as individuals, citizens and professionals, it does not prescribe a particular course of study. Rather, each generation must define the meaning of liberal education for its own time (Tom, n.d.). Kimball (1986) argues that the idea of liberal education embraces two contradictory traditions--the tradition of the philosophers with their commitment to reason and the tradition of the orators with their commitment to tradition and community. Historically, the liberal arts college sided with the orators' emphasis on language and texts while the modern research university allied itself with the philosophers' pursuit of knowledge. The challenge for teacher educators is to recover elements of both traditions and link them with the theme of democracy (Featherstone, 1988).

The liberal arts tradition underscores the special ties that link intellectual arts, academic content, and teaching. While some people associate a liberal arts education with subject matter preparation, this interpretation misses the larger message. What makes the relationship between liberal education and teacher education unique is the fact that the goods intrinsic to liberal education--humane values, critical thinking, historic perspective, broad knowledge--are central to teaching (Travers and Sacks, 1987). They are, in short, the very tools of the teacher's trade. Moreover, the liberal arts tradition construes education itself as a liberal art. "The study of education," writes Silberman (1970), "is the study of almost every question of importance in philosophy, history, and sociology . . . there can be no concept of the good life or the good society apart from a concept of the kind of education needed to sustain it" (p. 384). From this perspective the academic study of education belongs at the center of a liberal arts curriculum.

Professionalizing Education Through Scientific Research and Graduate Preparation

The creation of university schools of education at the turn of the century was part of a larger movement to professionalize various occupations. Like their counterparts in law and medicine, educators sought to place teacher education in the modern research university, hoping that the new location would dignify education as a career, lead to the development of a specialized knowledge base, and support the professional preparation of educational leaders (Clifford and Guthrie, 1988; Powell, 1976).

Graduate preparation for careers in education. Early on, leading university schools of education bypassed the preparation of new teachers, concentrating instead on graduate programs for experienced teachers interested in careers outside the classroom. Previous efforts to transform high school teaching into a respected profession through graduate preparation proved unrealistic and inappropriate in the face of mass secondary education. The unanticipated growth of secondary schools did create a need for administrators, supervisors, and specialists; and schools of education found a new social mission in training experienced, male teachers for these

roles (Powell, 1976). Education faculty recognized that gender played a part in the low esteem many had for teaching and teacher education. They sought to overcome the stigma by focusing on career opportunities for ambitious schoolmen. Unfortunately by increasing the status of those leaving the classroom, they lowered the status of those who remained (Clifford and Guthrie, 1988, p. 119).

The research ideal. While fields like law and theology found the codification of experience to be a useful strategy for creating a knowledge base, schools of education adopted the approach of the natural sciences. Developing a "science of education" through research became an overriding concern. The science of education movement embraced experimental and quantitative methods. Psychologist Edward Thorndike of Teacher College discovered general laws of learning through laboratory experiments and led the development of intelligence and achievement tests. The new fields of administration and supervision eagerly applied the tools of quantitative measurement to problems of school organization and pupil classification.

As the number of education faculty with social science training and research interests increased, the focus shifted from psychology and measurement. A growing confidence in the capacity of social science research to solve broad, social problems led to a new wave of research that rarely addressed problems confronting teachers in classrooms. The emphasis on research and academic specialization had a fragmenting effect on the curriculum. Courses, organized along disciplinary or occupational lines, proliferated. Even courses for practitioners treated students as though they were preparing to do research (Powell, 1976).

Devaluing experience. In searching for a special expertise that could not be supplied by experience, education faculty cut themselves off from models of good practice. Though early schools of education often drew inspiration from medical education, the idea of the teaching hospital as a setting for experimental treatment, research and professional training did not transfer. Even the label "laboratory" school applied to some campus or affiliated schools was an "empty promise". Educational researchers were not interested in studying classroom problems, supervision of practice teaching carried little status, and developing exemplary training sites required considerable resources (Clifford and Guthrie, 1988, pp. 109-121).

The historic distinctions between the normal school and the liberal arts traditions did not disappear when teacher education took up residence in the modern university. Rather they increased as schools of education found themselves caught between pressures from the university and pressures from the field. During their formative period, leading schools of education accommodated to these academic and professional pressures by ignoring initial teacher preparation and concentrating instead on graduate training and research. These policies may help explain why Borrowman (1956) characterizes the opening decades of the twentieth century as a time when the purposes of teacher education received little serious attention. Still, the leading schools of education did bequeath a mixed legacy that continues to influence the character of teacher preparation and proposals for its improvement. That legacy includes the

precedent of professionalization through graduate training, the ideal of scientific research as the key to an authoritative knowledge base, a devaluing of experience, and a continuing estrangement from teachers in the field and academic colleagues in the university (Judge, 1982).

Structural Alternatives

> 3 + 2 programs will become the more likely professional pattern among innovative programs by the middle of the 1990s and the 3 + 3 teaching program . . . will evolve from the integrated five-year programs and will probably be rather common within another generation. (Monahan, 1984, p. 43)
>
> The 4 + 1 model creates a relatively inexpensive program of short duration which can be subsidized if necessary when shortages become critical. (Wise, 1986, p. 39)
>
> Our experience suggests that the two-year, postbaccalaureate Teacher Corps model is superior to the one-year MAT program and also to the four year undergraduate model. (Bush, 1977, p. 6)

These three passages reflect a particular way of thinking about teacher preparation. They describe programs in terms of their general organization, specifying the length of the two main components. They imply that four-year, undergraduate programs are inadequate and should be replaced with a different model. They give the impression that this kind of general description is a meaningful way to characterize different approaches to teacher preparation. The passages also reflect the escalation of credentials that has characterized the field. From the days of the normal schools to the present, reformers have sought to improve the status and quality of teaching and teacher preparation by lengthening programs and adding requirements. The tendency to impose structural changes in the hopes that substantive changes will follow or to link quality with particular institutional arrangements is all too familiar.

Most teachers enter teaching by way of a four year, preservice program. The object of much criticism, undergraduate teacher education is the norm against which various structural alternatives have been proposed. One alternative involves extending the undergraduate program to five years. A second involves shifting or delaying professional studies until the graduate level. A third involves bypassing professional studies completely in favor of on-the-job training. Designed to address various limitations associated with undergraduate teacher preparation, these alternative structures differ in the extensiveness of the preparation they offer and in the ways they define the boundaries of their responsibility.

Undergraduate Programs

Despite considerable variation among the institutions that offer undergraduate programs, many people assume that such programs, like Gertrude Stein's proverbial rose, are all pretty much the same. Certainly common ways of talking give the impression that there is such a thing

as a "typical" program. Four-year programs are so uniform, notes Kerr (1983), that "a Trollope would surely mistakenly believe that a national curriculum has been imposed" (p. 133). The impression of sameness in content, organization and structure is reinforced by surveys of preservice preparation (American Association of Colleges of Teacher Education, 1987; Joyce, Yarger, and Howey, 1977). For example, the Preservice Teacher Education Study (Joyce, Yarger, and Howey, 1977; Yarger and Howey, 1977), which surveyed faculty, students and heads of education units in a random sample of 238 institutions preparing teachers, found "limited variation" in programs across the country. Commenting on the findings, Howey (1983) observes: "Initial training or teacher preparation programs across the country tend to appear quite similar at least in terms of the number and general type of experiences they afford students and the structure and framework in which these are organized" (p. 11).

A "plain vanilla" program. When people talk about a traditional preservice program, they have in mind a four-year program in which the first two years are devoted to general education and the last two to professional studies. The modern formula of breadth plus depth defined in terms of three or four grand divisions of knowledge (humanities, social sciences, natural sciences, fine arts) and calculated in courses and credits shapes general education requirements for teachers. Secondary education students major in an academic field close to their teaching subject; elementary majors construct a collection of academic minors supposedly related to the elementary school curriculum.

The professional sequence is also differentiated by teaching level. For elementary teachers, it consists of some sort of introduction to education, a course in educational psychology; six or seven methods courses for teaching reading, social studies, arithmetic, science, art and music; and student teaching. For secondary teachers, it involves a course in adolescent psychology, a general methods course, a subject-specific methods course and student teaching (Clark and Marker, 1975; Howey, Yarger, and Joyce, 1978). Typically the sequence begins with more theoretical courses often accompanied by some form of field experience and culminates in practice teaching (American Association of Colleges of Teacher Education, 1987). In terms of time, which many see as a major constraint, elementary education students complete an average of 50 of their 125 hours of credit in education, compared with secondary education students who average only 26 hours of credit in education (American Association of Colleges of Teacher Education, 1987, p. 12).

Where did this familiar structure come from? Cremin (1978) attributes the "present day paradigm of professional training in education" to James Earl Russell, dean of Teachers College (1894-1927), and his colleagues. According to Cremin, this model emerged at the turn of the century alongside different models in other fields as a response to widespread dissatisfaction with professional training at that time (e.g., apprenticeships for lawyers, proprietary schools for doctors, academies and normal schools for teachers).

Russell's paradigm: spirit or letter? In Russell's terms, a proper curriculum for teachers should contain four components: general culture, special scholarship, professional knowledge, and technical skill. Cremin summarizes what Russell had in mind:

> By general culture, he meant . . . the kind of preparation that would enable the student to see the relationships among the various fields of knowledge. . . . By special scholarship, he meant not only further academic study but the kind of reflective inquiry that would equip an aspiring teacher to select different sequences of material and adapt them to the needs of different students. . . . By professional knowledge, he implied . . . systematic inquiry into the theory and practice of education in the United States and abroad. . . . And, by technical skill, he implied . . . expert ability in determining what to teach and by what methods, when and to whom. Technical skill would be acquired in an experimental or model school, serving as a laboratory for pedagogical inquiry and a demonstration center for excellent practice. . . . The teachers in the school would be critic-teachers, capable of exemplifying first-class reflective pedagogy at the same time that they oversaw the training of novices. (pp. 10-11)

While we can discern the basic structure of Russell's curriculum in the familiar components of the typical undergraduate program, it is the letter not the spirit of the proposal that stands out. The dominance of the general education sequence reflects widespread agreement about its importance. In practice, however, general education is more like a supermarket where students make independent choices from a wide array of offerings. Rarely does it provide broad cultural knowledge or deep and flexible subject matter understanding.

Organizationally and conceptually, general education and professional education are separate and distinct. This makes it difficult to orient the study of academic content around problems of teaching and learning despite the fact that such an orientation might be as helpful to students who do not intend to teach as to those who do. In the professional sequence, the balance between what Borrowman (1956) calls the "liberal" and the "technical" seems tilted in the direction of the technical. Methods courses dominate, taught not by master teachers but by university professors. Foundational knowledge comes mostly from educational psychology. The development of technical skills is limited to a brief stint of student teaching. In short, the typical undergraduate program seems more like an organizational compromise, the offspring of an unhappy union between the normal school and the liberal arts traditions.

Critics. From their beginnings, undergraduate programs have been the object of intense criticism. Academics (e.g., Bestor, 1953; Conant, 1963; Koerner, 1963) charge that education courses lack rigor; teachers claim they lack practical relevance (Lortie, 1975). Despite the fact that faculty in the arts and sciences provide most of the undergraduate courses that future teachers take, criticism about teacher preparation has often meant criticism of the professional sequence.

Some researchers blame structural features in the undergraduate context for constraining programs and undermining improvement efforts. They point to persistent underfunding, second-class status, the diffuse nature of program responsibility and accountability (Clark and Marker, 1975; Clark, 1986; Kerr, 1983; Peseau, 1982). While future teachers take most of their undergraduate courses in academic departments, for example, these units are organized with little attention to their teacher education function (Lanier and Little, 1986). Until teacher education is removed from the undergraduate context, the argument goes, it will not be able to overcome these barriers.

Recent studies in higher education have focused on the need to improve the quality of undergraduate education overall (Association of American Colleges, 1985; Boyer, 1987; Department of Education, 1984). From the standpoint of teacher preparation, the criticism is timely. Still, the prospects for genuine reform are unclear. As Tom (1986) points out, the real task is to rethink general education and subject matter preparation, not simply expand requirements in these areas since "the problem with general education is its quality and coherence, not its length" (p. 31).

Supporters. Not all critics of undergraduate teacher preparation question its viability. Even a harsh critic like Conant (1963), whose study of American teacher education became a best seller, thought teachers could be adequately prepared for initial employment in four years provided they had a good high school education and an appropriate balance of general education, academic concentration, and professional studies. Conant outlined programs for elementary and secondary teachers that emphasized broad academic studies, minimal professional education, and a combination of methods instruction and practice teaching supervised by a "clinical professor," an expert teacher with high university rank.

Contemporary supporters of baccalaureate approaches to teacher preparation agree that the present size of the preservice curriculum is sufficient given the current status of pedagogical knowledge. They also claim that undergraduate programs allow for the integration of general and professional education, capitalize on the youthful idealism of students, provide a more cost-effective alternative than postbaccalaureate programs and support a developmental curriculum. Combined with a careful induction program for first-year teachers, they argue that undergraduate teacher preparation is a viable option (Hawley, 1986; Tom, 1986).

Extended (Five-Year) Programs

In an extended or five-year program, students begin their professional work as undergraduates and continue through a fifth year of professional study and supervised internship. While most extended programs culminate in a master's degree and certification, some end only in certification. Supporters argue that the five-year structure offers a more flexible framework and results in better integration of theory and practice. The extended time frame allows the possibility of greater emphasis on academic preparation and fieldwork and has encouraged

some rethinking of the professional sequence (Denemark and Nutter, 1984; Scannell, 1987; Weinstein, 1988).

Some extended programs try to improve on conventional undergraduate programs by avoiding the proliferation of methods courses. At the University of Virginia, for example, separate methods courses have been replaced by six-credit "blocs" in language skills (reading, language arts, children's literature, creative arts) and reasoning skills (mathematics, science, social studies, and creative arts [Weinstein, 1988]). The reduction of subject-specific methods courses tends to reinforce a generic view of teaching.

Another common feature of extended programs is the emphasis on field experiences that begin early, continue throughout the undergraduate years, and culminate in a semester of student teaching or a fifth-year internship. Compared with an undergraduate- or a graduate-level program, an extended program offers the possibility for a gradual induction into the study and practice of teaching.

Sometimes the promise of the five-year structure is compromised when a significant number of students transfer in as juniors or fifth-year students or cannot meet the requirements for graduate study (Zeichner, 1988a). Moreover, the graduate status of integrated programs may also be questionable if fifth-year courses do not build on prior knowledge and experience and offer greater intellectual challenge than undergraduate courses (Weinstein, 1988).

Graduate-Level Programs

Since the turn of the century, graduate-level preservice programs have been associated with efforts to professionalize teaching (Wise, 1986). Popular during times of teacher shortage, graduate programs are supposed to attract stronger candidates, offer more rigorous instruction and carry greater prestige than undergraduate programs. Supporters claim that having students spend four years acquiring a liberal arts education before they undertake professional studies means they will be better educated and have a strong grounding in their teaching subjects. Two types of postbaccalaureate preservice programs can be discerned--an MAT (master of arts in teaching) model emphasizing academic knowledge and practical experience and a professional model combining professional studies with guided practice.

Academic model. The MAT program originated in the 1930s when James Conant, president of Harvard, proposed a new kind of teacher preparation for secondary teachers that would help bridge the gap between education and the arts and sciences (Powell, 1980). The program combined advanced study of a scholarly discipline with a sequence of professional seminars and an internship. While the program attracted few students, it provided the prototype for MAT programs that flourished in the 50s and 60s with support from the Ford Foundation (Cogan, 1955; Stone, 1968; Woodring, 1957). Recruitment of liberal arts students into teaching was an overriding goal. The Foundation supported programs at Ivy League institutions and directed resources toward elaborate recruiting schemes. The emphasis on a scholarly curriculum

and the creation of a new academic degree were also designed to lure students wary of traditional education courses (Powell, 1980; Woodring, 1957). Stone (1968) offers the following description of a "typical" MAT program:

> The graduate student arrives at the university in June. The first week of the summer, he (approximately two-thirds of the students were women) enrolls in six to eight units of education courses at the same time assisting in teaching high school classes on campus or at a public school. During the second six weeks of the summer session he takes regular academic courses. Then the MAT candidates are divided, half beginning full-time teaching internships at nearby schools and the other half continuing on campus as full-time graduate students. At the end of the fall semester, the two groups reverse their activities. By the following June, candidates are eligible for the Master of Arts in Teaching degree and have qualified for their teaching credentials. (p. 96)

While MAT programs succeeded as a recruiting strategy (Coley and Thorpe, 1985; Stone, 1968; Zeichner, 1988b), they did not lead to new conceptualizations of subject matter knowledge or pedagogical understanding and skill (Clifford and Guthrie, 1988; Powell, 1980). Students took regular academic courses, designed for potential researchers and scholars, and most programs relied on a disciplinary approach to educational foundations. When external funding ran out and the teacher shortage ended, many programs disappeared. Although MAT programs left behind good ideas about financing internships and using summer school as a laboratory for demonstrating pedagogy, they did not advance our understanding about how to institutionalize such practices.

Professional model. The professionally oriented, preservice master's degree program represents a contrast with the academically oriented MAT approach. The idea has been promoted by educators who believe that the key to upgrading the quality of teaching lies in professional education not recruitment. One such educator was Henry Holmes, dean of the Harvard Graduate School of Education in the 20s, who vigorously promoted the EdM (master of education) as the highest practitioner degree in professional education. Influenced by other professional schools at Harvard, Holmes advocated a two-year, professional preparation sequence that would follow the completion of a liberal arts college course; the goal--to train educators rather than craftsmen, professionals who could interpret issues, policies, and decisions in terms of their impact on educational goals (Powell, 1980).

The success of this "radical adventure" depended on the development of a curriculum that would transform novices into educators. Holmes envisioned an intense, prolonged, integrated experience that would fuse knowledge, understanding, skills and outlook into an "active whole" (Powell, 1980, p. 159). Holmes sought but never succeeded in identifying a set of fundamental principles around which to organize the professional curriculum. After a decade of trying, he sadly concluded that the problem seemed to lie in the state of the field (Powell, 1980). It is

fitting and a bit ironic that a major national effort to reform teaching and teacher education today should carry Holmes' name (Holmes Group, 1986). The Holmes Group, a consortium of education deans and chief academic officers from 120 research universities in each of the 50 states, is dedicated to the improvement of teacher education and the construction of a genuine profession of teaching. Like its namesake, the Holmes Group advocates the elimination of undergraduate degrees in education in favor of graduate-level programs; however, the Holmes Group's emphasis on scientific knowledge and research and their endorsement of a hierarchy of teacher roles reflect different values from those advocated by Holmes himself (Johnson, 1987).

The group's first report, *Tomorrow's Teachers*, calls for a rethinking of liberal arts education including the design of more coherent majors, graduate-level professional studies, better articulation between pedagogical and clinical studies, the creation of exemplary training sites along the lines of a teaching hospital, and the establishment of a new career structure in teaching based on different kinds of professional preparation. The report claims that "a vital program of professional studies" can now be designed because scientific research has produced a body of professional knowledge helpful to teachers. According to the report, the "science of education promised by Dewey, Thorndike, and others at the turn of the century, has become more tangible." (p. 52) If this were so, a central problem that has plagued teacher education since its inception--the lack of a specialized knowledge base derived neither from the academic disciplines nor from experience alone--is closer to being solved than ever before.

Both critics and supporters of the Holmes Group point out that such claims are excessive and imply a devaluing of teachers' practical knowledge (Jackson, 1987; Zumwalt, 1987). Holmes himself emphasized practitioner training over scientific research because he saw how the university's emphasis on research widened the gap between researchers and practitioners and created a hierarchy in the education profession with researchers at the top and teachers at the bottom (Johnson, 1987). The Holmes Group proposals call for the redesign of every aspect of teacher preparation and require collaboration among groups that have historically not worked well together. It is too soon to tell what kinds of structural and conceptual changes will result from this latest effort at promoting graduate-level teacher preparation as part of a comprehensive reform effort (Woolfolk, 1988a, 1988b).

Alternative Certification Programs

Alternative certification programs are designed to increase the supply of teachers in areas of critical need during times of teacher shortage. A form of nontraditional teacher preparation, alternative certification programs provide on-the-job training to college graduates with no previous education background. Supporters claim that alternative certification programs attract talented people who might otherwise not go into teaching by avoiding certain features of traditional teacher preparation. For example, the traditional undergraduate program requires

an early commitment (e.g., junior year), consumes a third of one's college education, and offers little or no financial assistance. Alternative certification programs do not require an early commitment and they reduce the costs of training by shortening the time frame and paying a salary (Carey, Mittman, and Darling-Hammond, 1988).

Alternative certification programs rely on provisional teachers' undergraduate programs to provide a good general education and an adequate grounding in subject matter. The program itself emphasizes learning by doing and the wisdom of practice. Sponsored by school districts and state education departments, alternative certification programs are oriented toward helping new teachers learn their jobs in particular contexts. The distinction between preservice and inservice teacher education disappears as alternative certification candidates learn to teach while teaching.

The typical program includes some formal instruction and work with an experienced teacher. Offered in the evenings, on weekends and during the summer, the formal instruction often focuses on practical "how to" topics (Adelman, 1986). Support and advice are provided by "mentor" teachers, usually classroom teachers, who receive a stipend for their work. For example, New Jersey's Provisional Teacher Program requires 200 hours of formal instruction, 80 during the first six weeks of the program and the rest throughout the year. Offered in regional training centers managed by a school of education, the training addresses broad topics mandated by the state--curriculum and instruction, classrooms and schools, student learning, and development.

The local school district assumes responsibility for the practical aspects of the training. Each teacher is assigned a three-member support team consisting of a principal, experienced teacher, and another educator. In the first phase of the clinical component, the provisional teacher works for a month with an experienced teacher undergoing a gradual introduction to the classroom. During the 10 weeks of the second phase, the provisional teacher is supervised at least once a week by one member of the support team, usually the experienced teacher. At the end of Phase Two, the first formative evaluation is performed by the principal who also solicits feedback from other members of the support team. Phase Three includes the remaining 20 weeks of the academic year. During this time the provisional teacher must be supervised at least once a month and two more evaluations are carried out. A final summative evaluation occurs after the 30th week of full-time teaching (Natriello, 1988).

Because alternative certification programs are new, we know relatively little about the kind of preparation they offer and the sort of teaching they promote. Clearly their success hinges on the caliber of the recruits and the quality of the supervision. In terms of recruitment goals, however, they seem to be attracting strong candidates from a variety of labor market pools (Adelman, 1986; Carey, Mittman, and Darling-Hammond, 1988; Natriello, Zumwalt, Hansen, and Frisch, 1988). Many policymakers regard alternative certification programs as a promising strategy for balancing the competing demands of quantity and quality (Carey, Mittman, and

Darling-Hammond, 1988; Oliver and McKibbin, 1985). In the last few years, 23 states have enacted provisions for alternative certification (Feistritzer, 1986). But critics argue that such programs undermine efforts to professionalize teaching. At a time when the work of teachers is becoming increasingly complex, alternative certification programs allow people to teach with little formal preparation.

Discussion

Reforms in teacher education tend to pit one set of institutional arrangements against another--normal schools vs. teachers colleges in the past, undergraduate programs vs. graduate or alternative certification programs in the present. In fact, we know relatively little about what goes on inside these different program structures.

The forms of teacher preparation discussed in this section differ in the extensiveness of the preparation they offer, in the way they define the boundaries of their responsibility, and in their location on the preservice-inservice continuum. Four- and five-year programs encompass both general and professional education; Graduate and alternative route programs assume that candidates will come with a solid liberal arts background and adequate grounding in their teaching subjects. The widespread criticism of general education, however, raises questions about the adequacy of teachers' academic preparation whether or not it falls inside or outside the boundaries of the program's responsibility.

In terms of professional education, all forms must confront the question of what teachers need to know and how they can be helped to acquire and develop that knowledge. Except for alternative certification programs which take a clear stand on the matter, none of the other program forms is uniquely associated with a particular point of view. All must determine what counts as "knowledge for teaching" and decide how to embody it in a preservice curriculum.

Obviously differences in the time frame and timing of the professional sequence affect what is possible. Four- and five-year programs, for example, allow for a spiral curriculum and a staged induction into the study and practice of teaching. Fifth-year programs do not, especially when they are largely taken up with an internship.

Four-year programs fit completely within the preservice phase of learning to teach; five- and fifth-year programs may bridge the preservice-inservice continuum. Because alternative certification route programs provide on-the-job training to novice teachers, they could technically be considered a form of inservice. While quality programs require adequate time, time alone does not guarantee quality. The important question is how that time is spent. Such a question cannot be answered by focusing on the structure alone.

While reformers debate the relative merits of one form over another, the dominance of a given program structure at a particular historic moment depends as much on compelling social forces as it does on the demonstrated strengths or weaknesses of the form itself. There are several contemporary trends that may influence the popularity and availability of different forms

of teacher preparation. These include efforts by state legislators to limit undergraduate credits in education, the availability of alternative certification route programs, the challenge to vocationalism at the undergraduate level by the reform movement in liberal arts education, and an increase in the number of "at risk" students in schools (Wilkinson, 1988). Ironically, as the work of teaching is becoming more complex and challenging, suggesting the need for more extensive preparation, forces are in operation which permit college graduates to begin teaching with minimal preparation.

Finally, the history of teacher education suggests the importance of institutional norms in shaping the character and quality of preservice programs (Rhoades, 1985). As Clark and Marker (1975) observe: "The critical variance in teacher education programs among institutions is more a function of overall variance by institutional types than a systematic variation attributable to the professional training itself" (p. 58). While an undergraduate teacher education program in a liberal arts college may have the same components as an undergraduate program in a state university, what goes on inside the components may be very different (Howey and Zimpher, 1989; National Center for Research on Teacher Education, 1988a. To some extent, the impression of sameness among four-year programs may be an artifact of survey research that focuses on surface features and ignores institutional variation.

Conceptual Orientations

An orientation refers to a set of ideas about the goals of teacher preparation and the means for achieving them. Ideally, a conceptual orientation includes a view of teaching and learning and a theory about learning to teach. Such ideas should give direction to the practical activities of teacher preparation such as program planning, course development, instruction, supervision, evaluation. This section surveys five conceptual orientations in teacher preparation: (a) academic; (b) practical; (c) technological; (d) personal; and (e) critical/social.

Unlike structural alternatives, conceptual orientations are not tied to particular forms of teacher preparation. They can shape a single component or an entire professional sequence, apply to undergraduate- as well as graduate-level programs. Nor are the conceptual orientations mutually exclusive. By design or default, they can and indeed do exist side by side in the same program.

Since the mid-seventies, several typologies for examining conceptual variations in teacher education have been proposed (Hartnett and Naish, 1980; Joyce, 1975; Kennedy, 1987; Kirk, 1986; Zeichner, 1983; Zimpher and Howey, 1987). A comparison of these typologies reveals considerable overlap in the theoretical perspectives, models, paradigms discussed. Of the six typologies identified for this review, all include something resembling the critical, technological, and practical schools of thought; three acknowledge a personal tradition; and two an academic orientation (see Table 2). The major difference between the present formulation and previous ones is the treatment of the practical and academic orientations. By linking the practical

Table 2

Conceptual Orientations in Teacher Education

	ACADEMIC	PRACTICAL	TECHNOLOGICAL	PERSONAL	CRITICAL/ SOCIAL
Joyce (1975)	academic	traditional	competency	personalistic	progressive
Hartnett and Naish (1980)		craft	technological		critical
Zeichner (1983)	academic	craft	behavioristic	personalistic	inquiry
Kirk (1986)			rationalism		radicalism
Zimpher and Howey (1987)		clinical	technical	personal	critical
Kennedy (1987)		deliberate action; critical analysis	application of skills; application of principles and theories		

orientation with a more respectful stance toward the "wisdom of practice," and the academic orientation with new research on subject matter pedagogy, both categories are extended beyond their traditional associations.

Reflective teaching as a generic professional disposition. Some readers may wonder about the absence of a reflective orientation. Analyzing various descriptions of "reflective" teacher education programs (e.g., Beyer, 1984; Cruichshank, 1987; Feiman, 1979; Goodman, 1984; Noordhoff and Kleinfeld, 1987; Posner, 1985; Zeichner and Liston, 1987) and considering recent attempts to distinguish different versions of reflective teacher education (Clift, Houston and Pugach, in press; Liston and Zeichner, 1988a; Tom, 1985; Valli and Taylor, 1987) led to the conclusion that reflective teacher education is not a distinct programmatic emphasis but a generic professional disposition. This position is supported by the fact that many of the programs described in this section explicitly endorse the goal of reflection.

What differentiates advocates of reflective teaching and teacher education are their substantive goals which suggest different levels or foci for reflection (Van Manen, 1977). For example, a technological orientation may focus reflection on the most effective or efficient means to achieve particular instructional objectives, while a practical orientation may encourage reflection on practical dilemmas or tensions among competing goals in particular situations while illustrating different conceptual observations.

Describing orientations. Each orientation has a focus or thesis that highlights certain aspects of teaching, learning and learning to teach, directs attention to a central goal of teacher preparation and is manifest in particular practices. While the orientations do not have uniform and explicit positions on each of these dimensions, it is possible to summarize what supporters have to say about the teacher's role, teaching and learning, knowledge for teaching and learning to teach. To illustrate the practical expression of different orientations, programs or components are described. These brief sketches, based mostly on efforts by faculty to explain, document, and evaluate their own work, often reflect the espoused rather than the enacted curriculum. Still the descriptions reveal some of the diversity within each category and provide a basis for thinking about the value and limitations of describing teacher preparation in terms of conceptual orientations.

The Academic Orientation

The academic orientation in teacher preparation highlights the fact that teaching is primarily concerned with the transmission of knowledge and the development of understanding. Traditionally associated with liberal arts education and secondary teaching, the academic orientation emphasizes the teacher's role as intellectual leader, scholar, subject matter specialist. Supporters of the academic tradition, even those skeptical of teacher preparation, have always stressed the importance of teachers' academic preparation, but

there is a growing appreciation that the kind of subject matter knowledge teachers need is not likely to be acquired through academic study alone.

The academic orientation embraces various images of good teaching ranging from didactic instruction to Socratic inquiry. In terms of general goals, proponents talk about inducting students into different ways of knowing and thinking, teaching the "structures of the disciplines," fostering "meaningful" understanding of academic content. Different interpretations of these goals yield different ideas about how particular subjects should be taught. In mathematics education, for example, there are at least three competing views of effective teaching. One view emphasizes student performance and mastery of mathematical rules and procedures; a second stresses students' grasp of mathematical concepts and processes; a third focuses on students' personal construction of mathematical ideas. These views imply different ideas about what knowing, learning and teaching mathematics entails (see, for example, Ball, 1988a; Good and Grouws, 1977; Lampert, 1986).

Because teacher educators have not been responsible for teachers' subject matter preparation, they have tended to ignore the question of what teachers need to know about their subjects to teach them effectively and where that knowledge is acquired. In the case of elementary teaching, many assume that the content is easy to learn or already familiar because prospective teachers have "had" it in school themselves. In the case of secondary teaching, majoring in one's teaching field as an undergraduate is supposed to provide adequate subject matter background.

Research on subject matter pedagogy. Conceptual and empirical research on teachers' subject matter knowledge challenges these assumptions and provides a beginning knowledge base for the academic orientation. Besides clarifying what it means to know one's subjects for the purposes of teaching them, investigators are exploring how teachers' ideas of and about their subjects interact with other kinds of knowledge to influence teaching and learning in classrooms (See, for example, Ball, 1988b; Brophy, in press; Leinhardt and Smith, 1985; McDiarmid, Ball and Anderson, in press; Shulman, 1986 and 1987; Stodolsky, 1988). Subject matter or content knowledge includes knowledge of the facts, concepts and procedures that define a given field and an understanding of how these "pieces" fit together. It also includes knowledge about knowledge--where it comes from, how it grows, how truth is established (Anderson, 1988; Buchmann, 1984; Schwab, 1978).

But teachers need more than content knowledge. They need a special blend of content and pedagogy that Shulman (1986) has labeled "pedagogical content knowledge." The unique province of teachers, pedagogical content knowledge includes useful ways to conceptualize and represent commonly taught topics in a given subject plus an understanding of what makes learning those topics difficult or easy for students of different ages and backgrounds (Wilson, Shulman, and Rickert, 1986). The academic orientation turns the attention of teacher educators back to the "professional treatment of subject matter" theme

associated with the normal school tradition. It challenges the familiar division of labor between arts and science faculty and teacher educators and suggests the need for new conceptualizations as well as new institutional arrangements.

The MAT programs of the early 60s with their emphasis on disciplinary rather than professional knowledge illustrate one version of the academic orientation. The Academic Learning Program at Michigan State University illustrates another. Designed as a two-year sequence, the Academic Learning Program represents a serious effort to work out some of the conceptual and organizational problems associated with the academic orientation at the undergraduate level.

The Academic Learning Program. The Academic Learning Program is centrally concerned with helping elementary and secondary teachers learn to teach school subjects in ways that promote conceptual understanding. To prepare for that kind of teaching, the program emphasizes three areas of understanding: (a) a broad understanding of the disciplinary roots of school subjects; (b) knowledge about how pupils learn in different subject areas; (c) knowledge of effective teaching strategies and learning environments that promote conceptual understanding. The faculty also aim to prepare teachers who will "reflect on their own learning and teaching practice" (Rosean, Lanier, and Roth, 1988).

The program consists of an integrated sequence of core courses and an ongoing field experiences. The first two core courses, Learning of School Subjects and Curriculum for Academic Learning, draw on concepts from cognitive psychology, philosophy of science and curriculum to explore the major themes of the program--that knowledge is socially constructed, that learning is an active process of making meaning, that good teaching depends on a deep understanding of disciplinary knowledge and a repertoire of ways to represent key ideas in their fields (Amarel, 1988).

At the beginning of the program, students are paired with a local teacher ("mentor teacher"). Each term they visit their mentor teacher's classroom to carry out field assignments and, in the second year, to student teach. The field assignments are designed to help students link concepts taught in university courses with classroom practice. For example, students analyze how knowledge is represented in lessons and curricular materials and interview pupils to discover how they "make sense" of particular lessons.

Elementary education majors are also required to take a specially designed, three course math sequence taught by a mathematics professor and a math educator. The first course focuses on number theory, the second on geometry and the third on statistics. The sequence emphasizes conceptual understanding and actively engages students in making sense of mathematical situations. The course was motivated by the realization that elementary teachers cannot teach for understanding when they themselves have never been taught to understand the conceptual foundations of school mathematics. Preliminary findings on the impact of the first course suggest that students were beginning to understand for the

first time why rules and procedures they had memorized years ago really worked. Still at least half remained skeptical about whether instructional processes that had enabled them to reach such understanding such as group problem solving were realistic in elementary classrooms (Schram, Wilcox, Lanier, and Lappan, 1988).

The Practical Orientation

The practical orientation focuses attention on the elements of craft, technique, and artistry that skillful practitioners reveal in their work. It also recognizes that teachers deal with unique situations and that their work is ambiguous and uncertain. Long associated with apprenticeship systems of training, the practical orientation endorses the primacy of experience as a source of knowledge about teaching and a means of learning to teach.

Advocates of the practical orientation do not necessarily share the *same* image of good teaching. They would, however, agree on its essential character. Both researchers (e.g., Jackson, 1968, 1986; Lortie, 1975) and practitioners (e.g., Kohl, 1976; Lampert, 1985; McDonald, 1986) have described the localized, uncertain, often conflictful nature of teaching with its concomitant demand for personal artistry, adaptability, invention.

Lampert's (1985) analysis of her own teaching practice, for example, reveals how these characteristics affect teachers' work. In trying to solve many common pedagogical problems, she argues, teachers have to balance a variety of interests. Often this results in "practical dilemmas," situations which present equally important but conflicting alternatives. Rather than resolving these dilemmas, teachers "manage" them, inventing and improvising a succession of temporary responses.

Schon's (1983) insights about the nature of professional practice further illuminate ideas about teaching associated with the practical orientation. Schon discusses the kind of artistry or tacit "knowing-in-action" that competent practitioners reveal in their work. Highlighting those situations where established theory and codified technique do not apply, he describes how thoughtful practitioners engage in on-the-spot reflection and experimentation. In these internal conversations with the situation, they consider different interpretations or courses of action, drawing on a repertoire of images, theories, actions to construct an appropriate response.

Apprenticeship learning. From the practical orientation to teaching, it follows that learning to teach comes about through a combination of firsthand experience and interaction with peers and mentors about troublesome situations. Through these experiences, the novice is inducted into a community of practitioners and a world of practice.

The apprenticeship is the standard mode of learning associated with the practical orientation. Working with a master over a period of time, the apprentice acquires practical skills and learns what works in real situations. Ever since Dewey (1904) distinguished the "laboratory" view of practice work with its emphasis on intellectual methods from the

26a

"apprenticeship" view with its focus on technical proficiency, the apprenticeship has had bad press in teacher education circles. Apprenticeships, say the critics, encourage imitation rather than understanding and foster the maintenance of existing standards and practices (Arnstine, 1975; Wilson, 1975). Certainly research on student teaching confirms these outcomes.

While the apprenticeship model does encourage novices to learn the practices of the master, it does not necessarily preclude a consideration of underlying principles or the development of conceptual understanding (Ball, 1987; Tom, 1984). Collins, Brown, and Newman (in press) have coined the term "cognitive apprenticeship" to describe experiential learning situations in which teachers think aloud so that learners can not only observe their actions but also "see" how their teachers work through particular problems or tasks.

Using the architectural design studio as his prototype, Schon (1987) proposes the idea of a "reflective practicum" as an important element in professional education. In contrast to an apprenticeship, a practicum provides a simplified or protected encounter with the world of practice. In a practicum situation, students engage in activities that simulate or simplify practice or they take on real world projects under the guidance of a senior practitioner. To support the goals associated with the practical orientation, the focus would have to be on helping prospective teachers think through situations where there are no "right" answers. By trying out multiple interpretations and considering alternative courses of action, prospective teachers would be helped to recognize and even accept the endemic uncertainties of teaching (Floden and Clark, 1988).

The Teachers for Rural Alaska Program, located at the University of Alaska in Fairbanks, prepares teachers to work in situations of extreme ambiguity and uncertainty. Perhaps this explains why the program directors were drawn to ideas about teaching and learning to teach associated with the practical orientation.

The Teachers for Rural Alaska Program. The TRA Program prepares liberal arts graduates to work in rural Alaskan high schools. In these small, isolated communities, teachers are expected to teach many subjects and grade levels and assist communities faced with complicated political, social and economic challenges. Initially attracted to the rhetoric of "reflective inquiry," the program developers found the concept too general to provide direction to staff and students.

> We wanted to stress the problematic nature of practice and to orient our students to the complexities of the kinds of situations they could encounter. As we came to see it, however, the term "reflective inquiry" doesn't help much in talking about *what* it is to be reflected upon, *how* that reflection is to occur, and to *what ends* it is directed. (Noordhoff and Kleinfeld, 1987, p. 6.)

Instead of reflective teaching, they adopted the metaphor of teaching as a design activity.

To give students practice in deliberating about uncertain situations, the staff developed three major case studies based on the experiences of rural Alaskan teachers. Each case study describes a problem situation familiar to rural teachers in cross-cultural and multicultural communities--Native students' feelings about being "dumb" in a class with middle-class Caucasian students, a rural teacher's experiences in a community where alcoholism is rampant, a teacher harassed by a village and told to leave. Students analyze the cases from different vantage points, imagining a range of possible actions and their consequences. Students also complete a series of "design" projects during the professional seminar which meets daily on campus during the fall term. For example, students are given information about a particular context and culture (e.g., a village economy based on salmon fishing, parental ambivalence about sending children to college) and descriptions of individual students (e.g., seven Yu'pik Eskimo children of varying ages). Their job is to design a biology curriculum, formulating goals, exploring curricular materials, developing an instructional plan and justifying it on the basis of knowledge about students, subject and setting.

The practical wisdom of expert teachers has a prominent place in the TRA program. During the planning summer, five master teachers, selected by their colleagues, helped the project staff identify problems and dilemmas that teachers in rural settings face. Linked to the teaching of particular subjects, these problems provide the framework for the professional seminar that student take during the fall term. Master-teachers also serve as mentors during a six-week, afternoon apprenticeship and a semester of student teaching.

The TRA Program seems oriented to fostering the capacity for what Kennedy (1987) calls "deliberate action", a form of professional expertise that enables teachers to choose among alternative goals that may be sought in a given situation. Like critical analysis, deliberate action recognizes multiple ways of interpreting situations but it goes beyond analysis to yield action.

Technological Orientation

The technological orientation focuses attention on the knowledge and skills of teaching. The primary goal is to prepare teachers who can carry out the tasks of teaching with proficiency. Learning to teach involves the acquisition of principles and practices derived from the scientific study of teaching. Competence is defined in terms of performance. The technological orientation goes hand in hand with a search for a scientific basis for teaching. Proponents believe that the future of teaching as a profession rests on improvements that will come from the accumulation and application of scientific knowledge (Berliner, 1985; Gage, 1978; Lortie, 1975).

The past 10 years of productive research on teaching effectiveness have yielded a technology that can be taught to prospective teachers. It consists of generic teacher

behaviors and strategies associated with student achievement gains. (For a recent summary of the research, see Brophy and Good, 1986). Based on studies of math and reading instruction in conventional classrooms, the findings cohere around a direct instructional model of teaching. How should this research-based technology be used by teacher educators? Some proponents regard effective teaching behaviors as content for teacher training and criteria for the assessment of teaching competence. Others believe that findings from teacher effectiveness research should be taught as principles and procedures to be used by teachers in making decisions and solving problems. The former suggests the metaphor of teacher as technician; the latter, teacher as decisionmaker. In both cases, professional knowledge is basically procedural knowledge--ways to achieve specified goals and solve familiar problems.

Training model. The technological orientation is primarily associated with a training model of learning to teach. Joyce and Showers (1980, 1984) have outlined the components of effective teacher training. First, teachers should learn about the theory or rationale behind a given strategy or procedure. Second, they should see a demonstration. Third, teachers need a chance to practice and get feedback on their performance. Ideally this should initially take place in a relatively "safe" environment where teachers can concentrate on mastering the skills and concepts without having to deal with all the complexities that arise in real classrooms. Finally, teachers need help transferring the new behaviors to the classroom from a coach who can detect errors in application and point out correct responses.

Teacher as decision maker. The rational version of the technological orientation is captured by a description of an educational psychology course in an undergraduate preservice program organized around the theme of "teacher as decision maker". The description comes from an exploratory study of what was taught and learned in this preservice program (Feiman-Nemser, 1987; Feiman-Nemser and Buchmann, 1989). The course focused on instructional decision making from a systems perspective. Students received an instructional packet containing an overview of the course, a list of "terminal behaviors" and a description of the projects they would complete to demonstrate their attainment of the course objectives.

The course was organized around five topics: goals and objectives, task analysis, evaluation, information and practice. The instructor presented a format for daily lessons--introduction, instruction, practice and feedback, daily evaluation, application. Students were told that if they plan systematically and their plans reflect empirically validated principles of motivation and instruction, they can be reasonably certain that their pupils will learn what they are trying to teach. The course exemplified the training model approach. The instructor explained and demonstrated the elements in lesson planning. Students had an opportunity to practice each step separately and then to put them together in designing an instructional unit. Students were also expected to transfer their newly

acquired planning skills to the field. All term they developed and taught mini-lessons. Field instructors reinforced the systematic approach to planning by using the lesson plan framework as a basis for classroom observation and feedback.

Competency-based teacher preparation. No discussion of the technological orientation is complete without a reference to competency-based teacher education (CBTE). The reform movement of the late 60s and 70s, competency-based teacher education requires that teacher educators state explicitly the competencies students will acquire in their program and the criteria by which they will be assessed. Typically a competency-based program consists of instructional modules, sets of learning activities designed to help students achieve specific objectives (Elam, 1971; Houston and Howsam, 1972; Houston, 1974). Students' rate of progress through the program is determined by demonstrated competence rather than course completion.

In 1969, the U.S. Office of Education funded the design of nine comprehensive, competency-based elementary preservice models (Burden and Lanzilloti, 1969). While the project stimulated considerable talk about CBTE, lack of funding and an inadequate research base kept the idea from becoming much of a reality. Currently, competency-based teacher preparation is getting a boost from state legislatures who have mandated performance assessments of beginning teachers based on generic teaching principles. To help graduates meet the teaching competencies identified by the state, some universities have revised their preservice programs.

PROTEACH, a five-year preservice program at the University of Florida at Gainesville, provides an interesting case in point. Adopted in 1983 in response to the expanding knowledge base in teaching and state-mandated assessments of beginning teachers, PROTEACH aims to prepare "professional teachers" who make instructional decisions based on research and clinical insights (Smith, 1984). Widely publicized for its attention to teacher effectiveness research, the PROTEACH program actually embraces multiple commitments. Thus it illustrates some of the problems of trying to classify a program in terms of a single orientation.

Statewide use of the Florida Performance Measurement System (FPMS) has influenced the PROTEACH program. Based on generic research on teaching, the FPMS is organized into six domains: (a) instructional planning, (b) management of student conduct, (c) instructional organization, (d) presentation of subject matter, (e) communication, and (f) testing. Each domain consists of specific behaviors grouped into sets of competencies. Overall, the six domains include 128 behaviors organized into 28 competency categories. The faculty of the Elementary PROTEACH program are committed to helping students understand and become proficient in the performance domains of the FPMS. A new course, Research in Elementary Education, introduces students to research on teaching, the Florida Performance Measurement System, and other classroom observation

systems organized around discrete teaching skills. During the program, students study and practice the FPMS and have it used on them in the field. Several faculty and graduate advisors (the program's term for supervisor) have become state certified in the use of the FPMS.

At the same time, faculty want students to view the FPMS as only one of many sources that professional teachers draw on in making instructional decisions and to use it intelligently not mechanically (Zeichner, 1988a). A core group of faculty have adopted the term "reflective teaching" to express the stance they are trying to promote in the PROTEACH program. They have also created program components that stress the role of teachers as producers not simply consumers of classroom research (Ross and Kyle, 1987). For "purer" examples of competency-based programs, see case studies of programs at the University of Toledo (Howey and Zimpher, 1989) and the University of Houston (Ginsburg, 1988).

The Personal Orientation

The personal orientation places the teacher-learner at the center of the educational process. Learning to teach is construed as a process of learning to understand, develop and use oneself effectively. The teacher's own personal development is a central part of teacher preparation. "A good teacher," Combs (1965) claims, "is first and foremost a person, a unique personality" striving to fulfill himself (p. 6). Students also share this basic drive toward self-adequacy and enhancement. It follows that teaching is less a matter of prescribing and molding and more a matter of encouraging and assisting. The teacher is a facilitator who creates conditions conducive to learning. To do this, teachers must know their students as individuals. With this knowledge they can select materials or set learning tasks that respond to individual interests, needs, abilities.

Advocates of the personal orientation favor classrooms where learning derives from students' interests and takes the form of active, self-directed exploration. They emphasize concepts like readiness and personal meaning and appreciate the interconnections of thinking and feeling. Just as teachers must come to know students as individuals, so students are allowed to know their teacher as a person (Combs, 1982).

The general description of teaching and learning set forth above also applies to learning to teach which advocates of the personal orientation describe as a process of "becoming" or "development." Teacher educators in preservice preparation attach various meanings to these phrases. For some, becoming a teacher means making a psychological shift from the partly dependent role of student to the fully responsible role of teacher (Biber and Winsor, 1967), For others, it means developing a personal psychology and finding one's own best ways of teaching (Combs, 1965; Combs, Blume, Newman, and Wass, 1974). Still others focus on helping prospective teachers make the transition from early concerns about

self-adequacy to more mature concerns about pupils and their learning (Fuller and Bown, 1975).

Different versions of the personal orientation draw their rationale and guiding principles from developmental, humanistic, and perceptual psychology. From these sources, proponents derive content for the preservice curriculum such as dynamic concepts of learning and development and theories of human behavior and potential. They also drew ideas about the kinds of enabling conditions that promote meaningful learning on the part of prospective teachers. Most proponents talk about creating a supportive atmosphere where preservice students feel safe to take risks and discover personal meaning. They advocate field experiences where students can learn what they need to know and try their wings in encounters with "real" professional problems. They stress the importance of personal interactions with teacher educators who function as counselors or facilitators, helping prospective teachers explore problems, events, themselves and others (e.g., Combs, 1978; Fuller and Bown, 1975).

One dilemma facing advocates of the personal orientation is how to balance openness to individual teaching styles with a commitment to particular values. Can a personally oriented preservice program promote a view of good teaching and, at the same time, encourage students to develop their own theories and discover methods that work for them? The programs described below illustrate two resolutions to this question.

Personalized teacher education. The Personalized Teacher Education Program (PET) at the University of Texas was an effort to make teacher preparation more "relevant" by gearing the curriculum to the "developmental" concerns of preservice students. The program grew out of research on teacher concerns conducted by Frances Fuller and her associates at the university's Research and Development Center on Teacher Education. Fuller (1969) discovered not only that prospective teachers have common concerns but that their concerns emerge in a fairly regular sequence. The sequence goes from early concerns about self to later concerns about pupils and their learning. If teacher educators want to engage the interests of their preservice students, Fuller (1970) concluded, they should start with content related to concerns about the self as teacher such as how to control a class, and hold off on content related to concerns about educational goals, instructional design, pupil evaluation.

The PET Program was designed to help undergraduate students resolve concerns about themselves as teachers so they could move toward concerns about pupils. To address teaching concerns early in the program, for example, students were required to plan and teach a 15-minute lesson to a real class. This early teaching experience, which was videotaped, did not allay concerns about self-adequacy, but it certainly elicited teaching related concerns (Newlove, 1969). While the program succeeded in moving students from concerns about self to concerns about teaching, few undergraduates made the transition to

concerns about pupils which Fuller regarded as the most difficult yet most important transition teachers ever make (Fuller, 1970). The PET program seems to give teacher educators a clear message about where they should put their energies--helping prospective teachers make a transition from concerns about self to concerns about students. In fact, a descriptive model of teacher concerns can never tell teacher educators what to do unless they first endorse the implicit goal of teacher development (Feiman-Nemser and Floden, 1981).

The advisement program at Bank Street College. Whereas the PET program seems to regard teacher development as an end in itself, the advisement program at Bank Street College in New York City views it as a vehicle for promoting a particular way of working with children. Since its founding in 1931, Bank Street College has been dedicated to "a clear system of values about education" and "a model of teaching excellence deemed essential to that system of values" (Biber and Winsor, 1967, p. 115-117). The advisement program is conceived as an analogue to that system of values and model of teaching. It allows students to experience on an adult level the kinds of learning opportunities and personal relationships which they, in turn, will enact with their pupils (Shapiro, 1988).

Shapiro (1988) describes the advisement program as "the intersection of learning in coursework, in fieldwork, in informal exchange with peers, and in the development of a personal style of teaching" (p. 10). Advisors help students integrate the different parts of the program and reflect on what they are learning and how they are changing (p. 29). Advisors work with students in three settings--field placements, weekly group conferences and individual sessions. Advisors help students function in the field and relate experiences there with what they are learning in courses. As students try on the role of teacher, they discover questions and problems to raise in conference group and individual sessions. The conference group is an occasion for learning from and with peers, a forum for group problem solving and reflection. While the content comes from the students, the advisor guides the discussion and summarizes the salient points.

Personal material is most likely to be discussed in individual sessions where advisors function as counselors. Advisors recognize that the quality of their relationship with students is the key. Shapiro (1988) characterizes that relationship as "personal but not intimate, supportive but not maternal, non-didactic but not laissez-faire. It is, at base, a relationship of teacher and student, based on mutual trust and respect" (p. 28).

Advisors must balance their commitment to a particular view of good teaching with their wish to help students find their own teaching style. Shapiro (1988) quotes an advisor who tells her students: "I don't want you to become a 'Bank Street teacher' but the best teacher you can be" (p. 12). Still, this openness to individual styles is bounded by the larger ethos of the institution.

The Critical/Social Orientation

The critical orientation in teacher preparation combines a progressive social vision with a radical critique of schooling. On the one hand, there is an optimistic faith in the power of education to help shape a new social order; on the other, a sobering realization that schools have been instrumental in preserving social inequities. Just as the teacher plays an important role in social reform in this orientation, so teacher education is part of a larger strategy to create a more just and democratic society.

The teacher is both an educator and a political activist. In the classroom, the teacher creates a learning community that promotes democratic values and practices through group problem solving. In the school, the teacher participates in curriculum development and policymaking. In the community, the teacher works to improve school conditions and educational opportunities through community involvement and political activity. Ginsburg (1988) offers the following rationale:

> As educators of teachers, we must . . . operate as activists in broader struggles for social transformation . . . because these broader structural and ideological struggles are . . . dialectically related to the struggles within teacher education, because we need to be models for the people we seek to educate as teachers; and because becoming involved in such political activity will help us to establish relations with others whose lives are similarly enabled by these broader structures. (p. 214)

Contemporary proponents of the critical orientation in teacher preparation speak about "progressive education," "critical pedagogy," "emancipatory teaching," "student empowerment," but they rarely translate these terms into concrete classroom practices. There is a general consensus about the importance of promoting democratic values, helping students find their voice and develop their identity, linking schooling with students' experiences in the larger community. Still, it is easier to visualize the kind of teaching that supporters reject than the kind of teaching they seek to promote through teacher preparation. The discourse about critically oriented teacher preparation is often quite theoretical, and practices to achieve particular purposes have not been clearly articulated.

There are discussions of the sorts of issues and topics that a critically oriented preservice curriculum should address and examples of the kinds of teacher education practices that promote critical analysis and action. Giroux and McLaren (1986) recommend the critical study of such themes as language, history, culture, and power. They also stress the value of direct experience in helping teachers understand the relationships and forces that influence their pupils. For example, they suggest that student teachers compile oral histories of the communities in which they teach or work in and analyze the role of different community agencies. Such experiences would help them develop curricula around the

traditions, histories, and forms of knowledge that are often ignored within the dominant school culture.

The literature also contains descriptions of how individual methods courses, curriculum courses, and field experiences have been designed to promote critical analysis and critical pedagogy (e.g., Goodman, 1986a, 1986b; Zeichner and Liston, 1987). From such work, Zeichner (1987) culls five instructional strategies used by teacher educators associated with the critical tradition: ethnographic studies, journal writing, emancipatory supervision, action research, and curriculum analysis and development. Of course, it is not the strategies themselves but the purposes to which they are put that justifies the link with the critical orientation.

The description of New College, an unorthodox experiment in teacher preparation mounted at Teachers College, Columbia University, between 1932 and 1936, illustrates the continuity of the critical orientation with earlier progressive reforms. The description of the student teaching component at the University of Wisconsin illustrates the more analytic practices associated with contemporary expressions of the critical orientation.

The New College experiment. The New College program attempted to integrate general education, professional education, and laboratory experiences. The entire program was shaped around a definition of the teacher as a social leader. The faculty believed that "teachers should view their work against the background of world events and conditions and regard community involvement and leadership as a professional responsibility" (New College, 1936, p. 29-30).

In their first two years, New College students attended a central seminar organized around broad problem areas supplemented by divisional seminars in philosophy, natural sciences, the arts and human relationships. New York City served as a natural laboratory for developing general cultural understandings. In the last two years, the emphasis shifted from general cultural background to professional preparation. The central seminar took up educational implications of persistent social problems while divisional seminars focused on a particular teaching specialization. New College students were also required to spend time in the New College Community, a student-run farm in North Carolina and to study and travel abroad for at least a summer. Student teaching provided contacts with many phases of the teacher's work. In addition to opportunities for curriculum development, child study and instructional planning, student teachers surveyed local resources and needs and took part in various community activities.

The faculty continually tried to encourage political activity among the students. For example, in '1937, the director announced that two scholarships would be awarded to students "who go furthest beyond 'academic neutrality' in active participation in life outside the walls of the university" (Cremin, Shannon, and Townsend, 1954, p. 226).

Student teaching at the University of Wisconsin. The activist stance of the New College program with its varied opportunities for direct experience contrasts with the analytic stance of the University of Wisconsin student teaching component. Designed by teacher educators closely identified with the critical orientation, student teaching at Wisconsin is designed to foster critical reflection and pedagogy. Earlier statements of the program's rationale stressed the need for teachers to reflect on the moral and political implications of school structures and pedagogical practices and participate in curriculum development and educational policymaking (e.g., Zeichner, 1981-82); recent refinements call for teachers to add the role of political activist outside the classroom to their primary role as educators. The underlying metaphor of the program is "liberation" (Liston and Zeichner, 1988b; Zeichner and Liston, 1987).

The curriculum for the student teaching semester has five elements. The first is a teaching component that combines the gradual assumption of classroom responsibilities with an emphasis on curriculum development. The second is an inquiry component that focuses attention on the culture of schools and classrooms and their relationship to the larger political milieu. Students are required to carry out some investigation related to their own practices or the settings where they work. For example, students have analyzed the assumptions in various curricular materials, studied pupils' perceptions of school, experimented with different grouping strategies and their effects on pupil involvement.

The third component, a weekly seminar, is designed to help students "broaden their perspectives on teaching, consider the rationale underlying alternative possibilities for classrooms and pedagogy, and assess their own developing perspectives toward teaching" (p. 32). Journals, the fourth component, encourage student teachers to reflect systematically on their own development and their actions in classrooms and in the school. Finally, supervisory conferences emphasize analysis of classroom instruction, focusing on student teachers' intentions and beliefs, the social context of teaching, the content of instruction, and the hidden curriculum. Studies of the student teaching component at Wisconsin suggest partial implementation of goals (Zeichner, Malios, and Gomez, 1988), but limited impact on student teachers' perspectives (Tabachnick and Zeichner, 1985; Zeichner and Grant, 1981).

Discussion

A plurality of orientations and approaches exists because people hold different expectations for schools and teachers and because, in any complex human endeavor, there are always more goals to strive for than one can achieve at the same time. Teacher educators cannot avoid making choices about what to concentrate on. Thus deliberation about worthwhile goals and appropriate means must be an ongoing activity in the teacher education community. These deliberations would be aided by a conceptual framework that identifies central tasks of teacher preparation, those core activities that logically and

practically belong to the preservice phase of learning to teach. Helping prospective teachers make a transition to pedagogical thinking, to thinking about teaching in terms of what students are and should be learning is an example of such a task. Generally, teacher education students have not thought much about the reciprocal relationship of teaching and learning that defines the essence of their professional responsibilities. Such a framework could provide guidance to teacher educators in program development and evaluation by identifying issues or tasks that programs should address whatever their orientation. In a field like teacher education that has been shaped more by external factors than by a clear sense of purpose, this kind of conceptual clarity is essential.

While some of the orientations focus on essential tasks of teacher preparation, collectively they do not represent a set of equally valid alternatives from which to choose. Rather they constitute a source of ideas and practices to draw on in deliberating about how to prepare teachers in a particular context. Each orientation highlights different issues that must be considered, but none offers a fully developed framework to guide program development.

The personal orientation reminds us that learning to teach is a transformative process, not only a matter of acquiring new knowledge and skills. Because prospective teachers are no strangers to classrooms, resocialization is necessary especially if new ways of teaching are to be fostered.

The critical orientation highlights the teacher's obligations to students and society, challenging teacher educators to help novices learn to align school practices with democratic principles of justice and equality. The critical orientation also underscores the need to develop the habit of questioning taken-for-granted assumptions about teaching, learning, knowledge, schooling, and so forth.

The technological and practical orientations represent different ideas about the nature and sources of knowledge about teaching and how it can be acquired and developed. The former stresses scientific knowledge and systematic training; the latter, the "wisdom of practice" and learning from experience. Clearly both have a contribution to make to the content and processes of teacher preparation.

Finally, the academic orientation focuses attention on the distinctive work of teaching. What distinguishes teaching from other forms of human service is its concern with helping students learn worthwhile things they could not pick up on their own. It follows that preparing someone to teach means helping them develop ideas and dispositions related to this goal (Buchmann, 1984; Feiman-Nemser and Buchmann, 1989; Wilson, 1975). The academic orientation has been a "missing paradigm" in teacher education. Historically viewed as someone else's responsibility, preparing teachers to teach academic content has rarely been a central concern of teacher educators. The current reform movement with its concern for improving the academic quality of teaching and the new research emphasis on

the role of subject matter knowledge in teaching provide the impetus to give serious attention to this neglected aspect of teacher preparation.

Studying Different Approaches and Alterations

Many contemporary proposals for reforming teacher preparation echo earlier efforts. Still, the lack of systematic data makes it difficult to learn from past experience. Existing data do not permit clear portraits of the explicit preservice curriculum in different settings (Lanier and Little, 1986); nor do they help us understand the relative effects of selection compared with socialization or the relationship between opportunities to learn and learning outcomes in different types of preservice programs.

In a recent review of research on graduate-level preservice programs over the past 35 years, for example, Zeichner (1988b) laments the paltry findings despite millions of dollars spent on program development. While various studies do show that the quality of teaching displayed by MAT graduates was superior or comparable to that of teachers from undergraduate programs, there is no way of telling whether this outcome reflected the kinds of students recruited or the sort of preparation offered.

To consider the relative strengths and limitations of alternative approaches to teacher preparation, we need at least three kinds of research--program studies that examine what different programs are like as educational interventions, implementation studies that examine the factors promoting the success or failure of various programmatic reforms, and impact studies that explore the effects of particular program components and learning opportunities on teachers' ideas and practices.

Research-in-Progress

Recently several large-scale investigations have been undertaken to generate information about different approaches to teacher preparation in different types of institutions. These studies promise to yield a body of information and insights that can inform the work of policymakers and practitioners. While they differ in their scope and purpose, research design, and methodology, the projects all use teacher education programs as a major unit of analysis.

Research about Teacher Education. The Research About Teacher Education Project (RATE) is an ongoing data collection project of the American Association of Colleges of Teacher Education. Launched in 1985, the project is designed to generate a national database about the substance of teacher education programs and the perceptions of faculty and students. Each year 90 programs, stratified according to the highest degree offered, are sampled from the membership of 713. One person at each site fills out an institutional questionnaire and ten faculty and students complete a faculty or student survey that focuses on a specific program component (e.g., foundations, secondary methods).

The RATE project can be helpful in documenting program trends within and across different types of institutions. Two reports (American Association of Colleges of Teacher Education, 1987, 1988) provide a variety of "facts and figures" concerning the preparation of teachers. This kind of research is less effective in exploring issues related to program quality. For example, the 1987 report tells us that both faculty and students consider secondary education methods courses to be as "rigorous" or "more rigorous" than comparable courses in English and history, but less rigorous than science and math courses. As Zeichner (1988c) points out, since we know nothing about the criteria people used to reach this judgement or the courses they have in mind, this kind of finding does not say very much about the quality of teacher education.

Case studies of elementary teacher preparation. In conjunction with the first RATE survey, Kenneth Howey and Nancy Zimpher conducted field studies of six elementary education programs. Their goal was to provide "in-depth, personal accounts" of initial teacher preparation as it is carried out in different institutions of higher education. Six research sites in the midwest were chosen because they represent major types of institutions preparing teachers (research universities, comprehensive state universities, liberal arts colleges) and because their programs were nominated as "distinctive and/or exemplary." Besides generating descriptions of the "lived experience" of teacher education in particular settings, researchers sought "conditions and practices worthy of emulation." Influenced by the "school effectiveness" literature that identifies school-wide characteristics associated with a particular view of effective schools, they hypothesized that similar dimensions of program quality might exist for preservice programs.

During brief visits to the sites, researchers talked with program participants, observed various activities, and collected documents. From these data they have produced a set of case studies describing how teacher preparation is carried out in quite different settings (Howey and Zimpher, 1989). They have also generated a list of conditions and practices that appear to contribute to "coherent" or "effective" preservice programs. Examples include a clear conception of teaching/schooling, the use of student cohorts, high expectations, curriculum articulation, and adequate "life space" (e.g., time and space). The portraits will help fill a void in the descriptive literature and the conceptualization of "effective" program features provides one framework for thinking about potentially desirable practices. It would be a mistake, however, to assume that the features of "effective" programs derived from the data itself. Rather they reflect the researchers' views about what makes for a "coherent" teacher education program. Like any other normative concept, "coherence" must be defined and justified as a desirable quality in a preservice program.

Studying the Education of Educators. Values provide an explicit starting point for the SEE project which is looking at the preparation of teachers (and principals) in 29 institutions of higher education. Researchers are seeking evidence about the extent to which

current practices fit the project's working assumptions about the ideal features of a good teacher education program. Starting from an explicit vision of what teaching and schooling should be like, researchers have formulated a set of postulates regarding a well conducted teacher education program. For example, one postulate specifies: "Teacher preparation programs will admit the number of candidates for whom they can guarantee exposure to and participation in at least six different modes of exemplary teaching actually practiced in available school settings" (Goodlad, 1988, p. 110). Such a criterion seeks to remedy casual selection of sites for student teaching and encourages colleges and universities to collaborate with school districts in creating exemplary settings. Differences between what the postulate recommends and what researchers find will determine the project's recommendations regarding student teaching.

A sample of 29 institutions, located in eight states, was chosen to maximize the diversity of educational programs across a range of institutional types (Sirotnik, 1988). Drawing on multiple sources of data gathered over three, two-day site visits during the 1987-88 academic year, researchers are producing "information-based portraits" of each institution. They will also describe trends across institutions or trends moderated by such institutional factors as size, history, student population. As John Goodlad (1988), director of the study, points out, the research is not designed to address such matters as "whether the education of educators should be a graduate or undergraduate enterprise, whether all teachers should have masters degrees . . . or similar matters that crop up frequently in the current rhetoric of reform" (p. 111). Rather the project is interested in broader issues of institutional commitment, faculty support, program philosophy, and so on. By studying a set of representative programs in relation to an explicit normative framework, researchers hope to generate ideas about improving teacher preparation that go beyond piecemeal programmatic changes.

Teacher Education and Learning to Teach. The National Center for Research on Teacher Education, located at Michigan State, is examining the role of teacher education in teacher learning (National Center for Research on Teacher Education, 1988b). The Teacher Education and Learning to Teach Study combines case studies of different teacher education programs with longitudinal studies of teachers' learning. The two-part design allows the Center to describe the purpose and character of different programs, determine whether and how teachers' ideas and practices change as they participate in programs and move into teaching, and explore the relationship between opportunities to learn and learning outcomes. Eleven programs representing important ideas in contemporary teacher education and different types of learning opportunities serve as settings for the research. The sample includes preservice, induction, inservice and alternative route programs so that the Center can explore questions about teachers' learning at different stages of their careers.

A distinguishing feature of the work is the focus on teacher learning in relation to two subject areas, mathematics and writing. Within each site, the Center is following a sample of teachers over time, tracking changes in knowledge, skills, and dispositions as teachers move through teacher education and into independent teaching (Ball and McDiarmid, 1988). The overall goal of the research is to uncover the reasoning behind different ways of helping teachers learn to teach and describe their impact on teachers' learning. This project will yield a rich body of information about different approaches and alternatives to teacher preparation as well as conceptual frameworks for thinking about issues of program quality and teacher learning.

A major strength of the work-in-progress reviewed above is the effort to supplement what people say by observing what they do. In at least three of the projects, researchers are collecting observational data in classes and field experiences. While the intensity of the effort varies, there is a clear recognition that claims about the character and quality of programs must ultimately be grounded in more than self-reports.

The research projects also reflect an appreciation for the fact that programs are nested within larger institutional, historical, geographical, and policy contexts. By reporting insights and information in the form of program case studies, researchers will be telling stories about how and why programs have taken on their particular shape and character. This kind of information is essential in understanding the impact of various policy initiatives designed to improve teacher education.

Finally, at least one project is exploring the issue of program effects. Many people believe that teacher education is a weak intervention incapable of overcoming the powerful influence of teachers' own personal schooling or the impact of experience on-the-job. In addition, various claims have been made about the strengths and limitations of different program structures. By generating systematic data about the impact of different kinds of programs on teachers' ideas and practices, the National Center for Research on Teacher Education will enable the field to test these and other claims against some real evidence.

The research will inform and enrich the debate about how teachers should be prepared for their work. It will also provide a database and a set of frameworks for thinking about different approaches and alternatives to teacher preparation. As a result, when the Association of Teacher Educators undertakes its next *Handbook of Research on Teacher Education*, there should be a more robust body of research to draw on in discussing structural and conceptual alternatives in teacher preparation.

References

Adelman, N. (1986). *An exploratory study of teacher alternative certification and retraining programs* (Data Analysis Support Center Contract No. 300-85-0103). Washington, DC: Policy Studies Associates.

Amarel, M. (1988). *Site report: Academic Learning Program*. Unpublished paper, National Center for Research on Teacher Education, Michigan State University, East Lansing.

American Association of Colleges for Teacher Education. (1987). *Teaching teachers: Facts and figures*. Washington, DC: Author.

American Association of Colleges for Teacher Education. (1988). *Teaching teachers: Facts and figures*. Washington, DC: Author.

Anderson, C. (1988). The role of education in the academic disciplines in teacher education. In A. Woolfolk (Ed.), *Research perspectives on the graduate preparation of teachers* (pp. 88-107). Englewood Cliffs, NJ: Prentice-Hall.

Arnstine, D. (1975). Apprenticeship as the miseducation of teachers. In R. Pratte (Ed.), *Philosophy of Education 1975* (Proceedings of the 31st annual meeting of the Philosophy of Education Society, pp. 113-123). San Jose, CA: Society for Studies in Philosophy and Education.

Association of American Colleges. (1985). *Integrity in the academic curriculum.* Washington, DC: Author.

Ball, D. (1988a). *Research on teaching mathematics: Making subject matter knowledge part of the equation* (Research Report 88-2). East Lansing: Michigan State University, National Center for Research on Teacher Education.

Ball, D. (1988b). *The subject matter preparation of prospective mathematics teachers: Challenging the myths* (Research Report 88-3). East Lansing: Michigan State University, National Center for Research on Teacher Education.

Ball, D. (1987, April). *"Laboratory" and "apprenticeship": How do they function as metaphors for practical experience in teacher education?* Paper presented at the annual meeting of the American Educational Research Association, Washington, DC.

Ball, D., and McDiarmid, W. (1988). Research on teacher learning: Studying how teachers' knowledge changes. *Action in Teacher Education, 10*(2), 17-24.

Berliner, D. (1985). Laboratory settings and the study of teacher education. *Journal of Teacher Education, 36*(6), 2-8.

Bestor, A. (1953). *Educational wastelands*. Urbana: University of Illinois Press.

Beyer, L. (1984). Field experience, ideology, and the development of critical reflectivity. *Journal of Teacher Education, 35*(3), 36-41.

Biber, B., and Winsor, C. (1967). An analysis of the guidance function in a graduate teacher education program. In *Mental health and teacher education* (46th yearbook of the Association for Student Teaching, p. 81-119). Dubuque, IA: Brown.

Borrowman, M. (1956). *The liberal and technical in teacher education.* New York: Columbia University, Teachers College, Bureau of Publications.

Borrowman, M. (1965). Liberal education and the professional preparation of teachers. In M. L. Borrowman (Ed.), *Teacher education in America* (pp. 1-53). New York: Teachers College Press.

Boyer, E. (1987). *College: The undergraduate experience in America.* New York: Harper and Row.

Brophy, J. (in press). *Advances in research on teaching: Vol. 2 Teachers' subject matter knowledge and classroom instruction.* Greenwich, CT: JAI Press.

Brophy, J., and Good, T. (1986). Teacher behavior and student achievement. In M. C. Wittrock (Ed.), *Handbook of research on teaching* (3rd ed., pp. 328-375). New York: Macmillan.

Buchmann, M. (1984). The priority of knowledge and understanding in teaching. In L. Katz and J. Raths (Eds.), *Advances in teacher education* (pp. 29-50). Norwood, NJ: Ablex.

Burdin, J., and Lanzillotti, K. (1969). *A reader's guide to the comprehensive models for preparing elementary teachers.* Washington, DC: American Association of Colleges of Teacher Education.

Bush, R. (1977). We know how to train teachers: Why not do so! *Journal of Teacher Education, 28*(6), 5-9.

Carey, N., Mittman, B., and Darling-Hammond, L. (1988). *Recruiting mathematics and science teachers through nontraditional programs: A survey.* Santa Monica, CA: Rand Corporation, Center for the Study of the Teaching Profession.

Church, R., and Sedlak, M. (1976). *Education in the United States: An interpretive history.* New York: Free Press.

Clark, D. (1986). Transforming the structure for the professional preparation of teachers. In L. Katz and J. Raths (Eds.), *Advances in teacher education* (Vol. 1, pp. 1-19). Norwood, NJ: Ablex.

Clark, D., and Marker, G. (1975). The institutionalization of teacher education. In K. Ryan (Ed.), *Teacher education* (74th yearbook of the National Society for the Study of Education, pp. 53-86). Chicago: University of Chicago Press.

Clifford, G., and Guthrie, J. (1988). *Ed school: A brief for professional education.* Chicago: University of Chicago Press.

Clift, R., Houston, W. R., and Pugach, M. (Eds.). (in press). *Encouraging reflective practice: An examination of issues and exemplars.* New York: Teachers College Press.

Cogan, M. (1955). Master of arts in teaching at Harvard University. *Journal of Teacher Education, 6*(2), 135-142.

Coley, R., and Thorpe, M. (1985). *A look at the MAT model of teacher education and its graduates: Lessons for today* (Final report sponsored by the Ford Foundation). Princeton, NJ: Educational Testing Service, Division of Education Policy Research and Services.

Collins, A., Brown, J., and Newman, S. (in press). Cognitive apprenticeship: Teaching the craft of reading, writing and mathematics. In L. B. Resnick (Ed.), *Cognition and Instruction: Issues and Agendas.* Hillsdale, NJ: Erlbaum.

Combs, A. (1965). *The professional education of teachers.* Boston: Allyn and Bacon.

Combs, A. (1978). Teacher education: The person in the process. *Educational Leadership, 35,* 558-561.

Combs, A. (1982). *A personal approach to teaching.* Boston: Allyn and Bacon.

Combs, A., Blume, R., Newman, A., and Wass, H. (1974). *The professional education of teachers: A humanistic approach to teacher education.* Boston: Allyn and Bacon.

Conant, J. (1963). *The education of American teachers.* New York: McGraw- Hill.

Cremin, L. (1953). The heritage of American teacher education. Part I. *Journal of Teacher Education, 4*(2), 163-170.

Cremin, L. (1978). *The education of the educating professions* (The 19th Charles W. Hunt Lecture). Chicago: American Association of Colleges for Teacher Education.

Cremin, L., Shannon, D., and Townsend, M. (1954). *A history of Teachers College.* New York: Columbia University Press.

Cruickshank, D. (1987). *Reflective teaching: The preparation of students of teaching.* Reston, VA: Association of Teacher Educators.

Denemark, G., and Nutter, N. (1984). The case for extended programs of initial preparation. In L. Katz and J. Raths, (Eds.), *Advances in teacher education* (Vol. 1, pp. 203-246). Norwood, NJ: Ablex.

Department of Education. (1984). *Involvement in learning: Realizing the potential of American higher education.* Washington, DC: National Institute of Education.

Dewey, J. (1904). The relation of theory to practice in education. In C. A. Murry (Ed.), *The relation of theory to practice in the education of teachers* (Third yearbook of the National Society for the Scientific Study of Education, Part I, pp. 1-30). Chicago: University of Chicago Press.

Elam, S. (1971). *Performance-based teacher education.* Washington, DC: American Association of Colleges of Teacher Education.

Featherstone, J. (1988). A note on liberal learning. *NCRTE Colloquy, 2,*(l), 1-8.

Feiman, S. (1979). Technique and inquiry in teacher education: A curricular case study. *Curriculum Inquiry, 9,* 63-79.

Feiman-Nemser, S. (1987). *Talking to prospective teachers: Lessons from educational psychology.* Paper presented at the annual meeting of the American Educational Research Association, Washington, DC.

Feiman-Nemser, S., and Buchmann, M. (1989) Describing teacher education: A framework and illustrative findings from a longitudinal study of six students. *Elementary School Journal, 89,* 365-377.

Feiman-Nemser, S., and Floden, R. (1981). A critique of developmental approaches in teacher education. *Action in Teacher Education, 3*(1), 35-38.

Feistritzer, E. G. (1986). *Profile of teachers in the U.S.* Washington, DC: National Center for Education Information.

Floden, R., and Clark, C. (1988). Preparing teachers for uncertainty. *Teachers College Record, 89,* 505-524.

Fuller, F. (1969). Concerns of teachers: A developmental conceptualization. *American Educational Research Journal, 6,* 207-226.

Fuller, F. F. (1970). *Personalized education for teachers: One application of the teacher concerns model.* Austin: University of Texas, Research and Development Center for Teachers.

Fuller, F. F., and Bown, O. (1975). Becoming a teacher. In K. Ryan (Ed.), *Teacher education* (74th yearbook of the National Society for the Study of Education, pp. 25-52). Chicago: University of Chicago Press.

Gage, N. (1978). *The scientific basics of the art of teaching.* New York: Teachers College Press.

Ginsburg, M. (1988). *Contradictions in teacher education and society: A critical analysis.* Philadelphia: Falmer.

Giroux, H., and McLaren, P. (1986). Teacher education and the politics of engagement: The case for democratic schooling. *Harvard Educational Review, 56,* 213-238.

Good, T., and Grouws, P. A. (1977). Teaching effects: A process-product study in fourth grade mathematics classrooms. *Journal of Teacher Education, 28*(3), 49-54.

Goodlad, J. (1988). Studying the education of educators: Values-driven inquiry. *Phi Delta Kappan, 70,* 105-111.

Goodman, J. (1984). Reflection and teacher education: A case study and theoretical analysis. *Interchange, 15*(3), 9-26.

Goodman, J. (1986a). Teaching preservice teachers a critical approach to curriculum design: A descriptive account. *Curriculum Inquiry, 16,* 179-201.

Goodman, J. (1986b). Making early field experience meaningful: A critical approach. *Journal of Education for Teaching, 12,* 109-125.

Hartnett, A., and Naish, M. (1980). Technicians or social bandits? Some moral and political issues in the education of teachers. In P. Woods (Ed.), *Teacher strategies* (pp. 254-274). London: Croom Helm.

Hawley, W. (1986). A critical analysis of the Holmes Group's proposals for reforming teacher education. *Journal of Teacher Education, 37*(4), 47-51.

Holmes Group. (1986). *Tomorrow's teachers.* East Lansing, MI: Author.

Houston, W. R. (Ed.). (1974). *Exploring competency-based teacher education.* Berkeley, CA: McCutchan.

Houston, W. R., and Howsam, R. (1972). *Competency-based teacher education: Progress, problems and prospects.* Chicago: Science Research Associates.

Howey, K. (1983). Teacher education: An overview. In K. R. Howey and W. E. Gardner (Eds.), *The education of teachers* (pp. 6-37). New York: Longman.

Howey, K., Yarger, S., and Joyce, B. (1978). *Improving teacher education.* Washington, DC: Association of Teacher Educators.

Howey, K., and Zimpher, N. (1989). *Profiles of preservice teacher education.* Albany: SUNY Press.

Jackson, P. (1968). *Life in classrooms.* New York: Holt, Rinehart and Winston.

Jackson, P. (1986). *The practice of teaching.* New York: Teachers College Press.

Jackson, P. (1987). Facing our ignorance. *Teachers College Record, 88*, 384-389.

Johnson, W. (1987). Empowering practitioners: Holmes, Carnegie, and the lessons of history. *History of Education Quarterly, 27*, 221-240.

Joyce, B. (1975). Conceptions of man and their implications for teacher education. In K. Ryan (Ed.), *Teacher education* (74th yearbook of the National Society for the Study of Education, pp. 111-145). Chicago: University of Chicago Press.

Joyce, B., and Showers, B. (1980). Improving inservice training: The message of research. *Educational Leadership, 37*, 379-385.

Joyce, B., and Showers, B. (1984). *Power for staff development through research on training.* Washington, DC: Association for Supervision and Curriculum Development.

Joyce, B., Yarger, S., and Howey, K. (1977). *Preservice teacher education*. Palo Alto, CA: Booksend Laboratory.

Judge, H. (1982). *American graduate schools of education: A view from abroad*. New York: Ford Foundation.

Kennedy, M. (1987). Inexact sciences: Professional education and the development of expertise. In E. Rothkopf (Ed.), *Review of research in education* (Vol. 14, pp. 133-167). Washington, DC: American Educational Research Association.

Kerr, D. H. (1983). Teaching competence and teacher education in the United States. In L. S. Shulman and G. Sykes (Eds.), *Handbook of teaching and policy* (pp. 126-149). New York: Longman.

Kimball, B. (1986). *Orators and philosophers*. New York: Teachers College Press.

Kirk, D. (1986). Beyond the limits of theoretical discourse in teacher education: Towards a critical pedagogy. *Teaching and Teacher Education, 2*, 155-167.

Koerner, J. (1963). *The miseducation of American teachers*. Baltimore: Penguin Books.

Kohl, H. (1976). *On teaching*. New York: Schocken Books.

Lampert, M. (1985). How do teachers manage to teach? Perspectives on problems in practice. *Harvard Educational Review, 55*, 178-194.

Lampert, M. (1986). Knowing, doing, and teaching multiplication. *Cognition and Instruction, 3*, 305-342.

Lanier, J., and Little, J. (1986). Research on teacher education. In M. C. Wittrock (Ed.), *Handbook of research on teaching* (3rd ed., pp. 527-569). New York: Macmillan.

Leinhardt, G., and Smith, D. (1985). Expertise in mathematics instruction: Subject matter knowledge. *Journal of Educational Psychology, 77*, 247-271.

Liston, D., and Zeichner, K. (1988a). Reflective teacher education and moral deliberation. *Journal of Teacher Education, 38*(6), 2-8.

Liston, D., and Zeichner, K. (1988b, April). *Critical pedagogy and teacher education*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans.

Lortie, D. (1975). *Schoolteacher: A sociological study*. Chicago: University of Chicago Press.

McDiarmid, G. W., Ball, D. L., and Anderson, C. (in press). Why staying ahead one chapter just won't work: Subject-specific pedagogy. In M. Reynolds (Ed.), *Knowledge base for beginning teachers*. Washington, DC: American Association of Colleges of Teacher Education.

McDonald, J. P. (1986). Raising the teacher's voice and the ironic role of theory. *Harvard Educational Review, 56*, 355-378.

Monahan, W. (1984). *Teacher education in the '90s: A working paper*. Charleston, NC: Appalachia Education Laboratory.

Monroe, W. (1952). *Teaching-learning theory and teacher education: 1890-1950*. Urbana: University of Illinois Press.

National Center for Research on Teacher Education. (1988a). *Dialogues in teacher education* (Issue Paper 88-4). East Lansing: Michigan State University, National Center for Research on Teacher Education.

National Center for Research on Teacher Education. (1988b). Teacher education and learning to teach: A research agenda. *Journal of Teacher Education, 39*(6), 27-32.

Natriello, G. (1988). *Site report: New Jersey Provisional Teacher Program*. Unpublished paper, National Center for Research on Teacher Education, Michigan State University, East Lansing.

Natriello, G., Zumwalt, K., Hansen, A., and Frisch, A. (1988, April). *Who is choosing different routes into teaching?* Paper presented at the annual meeting of the American Educational Research Association, New Orleans.

New College. (1936). *Teachers College Record, 38*, 1-73.

Newlove, B. W. (1969). *The fifteen minute hour: An early teaching experience* (Report Series No. 23). Austin: University of Texas, Research and Development Center for Teacher Education.

Nordhoff, K., and Kleinfeld, J. (1987, October). *Rethinking the rhetoric of "reflective inquiry": What this language came to mean in a program to prepare rural teachers.* Paper presented at the Reflective Inquiry Conference, Houston.

Oliver, B., and McKibbin, M. (1985). Teacher trainees: Alternative credentialing in California. *Journal of Teacher Education, 36*(3), 20-23.

Peseau, B. A. (1982). Developing an adequate research base for teacher education. *Journal of Teacher Education, 33*(4), 13-15.

Posner, G. (1985). *Field experience: A guide to reflective teaching.* New York: Longman.

Powell, A. (1976). University schools of education in the twentieth century. *Peabody Journal of Education, 54*(1), 3-20.

Powell, A. (1980). *The uncertain profession: Harvard and the search for educational authority.* Cambridge: Harvard University Press.

Randolph, E. (1924). *The professional treatment of subject matter.* Balitmore: Warwick and York.

Rhoades, G. (1985). *The costs of academic excellence in teacher education* (Working Paper #5). Los Angeles, CA: University of California, Graduate School of Education, Comparative Higher Education Research Group.

Rosaen, C., Lanier, P., and Roth, K. (1988, April). *Educative field experiences: The faculty perspective.* Paper presented at the annual meeting of the American Association of Colleges of Teacher Education, New Orleans.

Ross, D., and Kyle, D. (1987). Helping teachers learn to use teacher effectiveness research. *Journal of Teacher Education, 38*(2), 40-44.

Scannell, D. (1987). Fifth year and extended programs. In M. Haberman and J. Backus (Eds.), *Advances in Teacher Education*, (Vol. 3, pp. 168-180). Norwood, NJ: Ablex.

Schon, D. (1983). *The reflective practitioner.* New York: Basic Books.

Schon, D. (1987). *Educating the reflective practitioner.* San Francisco: Jossey-Bass.

Schram, P., Wilcox, S., Lanier, P., and Lappan, G. (1988). *Changing mathematical conceptions of preservice teachers: A content and pedagogical intervention* (Research Report 88-4). East Lansing: Michigan State University, National Center for Research on Teacher Education.

Schwab, J. (1978). Education and the structure of the disciplines. In I. Westbury and N. Wilkof (Eds.), *Science, curriculum and liberal education: Selected essays* (pp. 229-272). Chicago: University of Chicago Press.

Shapiro, E. (1988). *Teacher: Being and becoming.* New York: Bank Street College.

Shulman, L. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher, 15*(2), 4-14.

Shulman, L. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review, 57*, 1-22.

Silberman, C. (1970). *Crisis in the classroom: The remaking of American education.* New York: Random House.

Sirotnik, K. (1988). Studying the education of educators: Methodology. *Phi Delta Kappan, 70*, 241-247.

Smith, D. (1984). PROTEACH: Teacher preparation at the University of Florida. *Teacher Education and Practice, 1*(2), 5-12.

Stodolsky, S. (1988). *The subject matters.* Chicago: University of Chicago Press.

Stone, J. (1968). *Breakthrough in teacher education.* San Francisco: Jossey-Bass.

Tabachnick, T., and Zeichner, K. (1985). *The development of teacher perspectives: Final report.* Madison: University of Wisconsin, Wisconsin Center for Education Research.

Tom, A. (1984). *Teaching as a moral craft.* New York: Longman.

Tom, A. (1985). Inquiring into inquiry-oriented teacher education. *Journal of Teacher Education, 36*(5), 35-44.

Tom, A. (1986). *The case for maintaining teacher education at the undergraduate level.* Paper presented at the Coalition of Teacher Education Programs, Washington University, St. Louis.

Tom, A. (Ed.). (n.d.). *Teacher education in liberal arts settings: Achievements, realities and challenges.* Washington, DC: American Association of Colleges for Teacher Education and American Independent Liberal Arts Colleges for Teacher Education.

Travers, E., and Sacks, S. (1987). *Teacher education and the liberal arts: The position of the consortium for excellence in teacher education.* Swarthmore, PA: Swarthmore College.

Van Manen, M. (1977). Linking ways of knowing with ways of being practical. *Curriculum Inquiry, 6*, 205-228.

Valli, L., and Taylor, N. (1987, October). *Reflective teacher education: Preferred characteristics for a content and process model.* Paper presented at the Reflective Inquiry Conference, Houston.

Weinstein, C. (1988). Case studies of extended teacher preparation. In A. Woolfolk (Ed.), *Research perspectives on the graduate preparation of teachers* (pp. 30-50). Englewood Cliffs, NJ: Prentice-Hall.

Wilkinson, L. (1988). Prospects for graduate preparation of teachers. In A. Woolfolk, (Ed.), *Research perspectives on the graduate preparation of teachers* (pp. 352-369). Englewood Cliffs, NJ: Prentice-Hall.

Wilson, J. (175). *Educational theory and the preparation of teachers*. Windsor, England: NFER.

Wilson, S., Shulman, L., and Richert, A. (1986). "150 different ways" of knowing: Representations of knowledge in teaching. In J. Calderhead (Ed.), *Exploring teachers' thinking* (pp. 104-124). Eastbourne, England: Cassell.

Wise, A. E. (1986). Graduate teacher education and teacher professionalism. *Journal of Teacher Education, 37*(5), 36-40.

Woodring, P. (1957). *New directions in teacher education*. New York: Fund for the Advancement of Education.

Woodring, P. (1975) The development of teacher education. In K. Ryan (Ed.), *Teacher education* (74th yearbook of the National Society for the Study of Education, Part 2, pp. 1-24). Chicago: University of Chicago Press.

Woolfolk, A. (1988a). Graduate preparation of teachers: The debate and beyond. In A. Woolfolk (Ed.), *Research perspectives on the graduate preparation of teachers* (pp. 1-11). Englewood Cliffs, NJ: Prentice-Hall.

Woolfolk, A. (Ed.) (1988b). *Research perspectives on the graduate preparation of teachers*. Englewood Cliffs, NJ: Prentice-Hall.

Yarger, S., and Howey, K. (1977). Reflections on preservice preparation: Impressions from the national survey. *Journal of Teacher Education, 28*(6), 34-37.

Zeichner, K. (1981-82). Reflective teaching and field-based experience in teacher education. *Interchange, 12*, 1-22.

Zeichner, K. (1983). Alternative paradigms of teacher education. *Journal of Teacher Education, 34*(3), 3-9.

Zeichner, K. (1987). Preparing reflective teachers: An overview of instructional strategies which have been employed in preservice teacher education. *International Journal of Educational Research, 11*, 565-575.

Zeichner, K. (1988a). University of Florida, Gainesville, Elementary PROTEACH and Secondary English PROTEACH: Site Report. In National Center for Research in Teacher Education, *Dialogues in teacher education* (Issue Paper 88-4, pp. 55-81). East Lansing: Michigan State University, NCRTE.

Zeichner, K. (1988b). Learning from experience in graduate teacher preparation. In A. Woolfolk (Ed.), *Research perspectives on the graduate preparation of teachers* (p. 12-29). Englewood Cliffs, NJ: Prentice-Hall.

Zeichner, K. (1988c). *Understanding the character and quality of the academic and professional components of teacher education* (Research Report 88-1). East Lansing: Michigan State University, National Center for Research on Teacher Education.

Zeichner, K., and Grant, C. (1981). Biography and social structure in the socialization of student teachers. *Journal of Education for Teaching, 1*, 198-214.

Zeichner, K., and Liston, D. (1987). Teaching student teachers to reflect. *Harvard Educational Review, 57*, 23-48.

Zeichner, K., Mahlios, M., and Gomez, M. (1988). The structure and goals of a student teaching program and the character and quality of supervisory discourse. *Teaching and Teacher Education, 4*, 349-362.

Zimpher, N., and Howey, K. (1987). Adapting supervisory practice to different orientations of teaching competence. *Journal of Curriculum and Supervision, 2*(2), 101-127.

Zumwalt, K. (1987). Tomorrow's teachers: Tomorrow's work. *Teachers College Record, 88*, 426-431.